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ADDRESSES AND ORIGINAL ARTICLES

A CLINICAL STUDY OF HEADACHES*

BY SIR EDMUND SPRIGGS, K.C.V.O., M.D., F.R.C.P. Lond.
SENIOR PHYSICIAN, RUTHIN CASTLE

IN the early days of our lives as doctors we form impressions which lead us to become sceptical or sanguine about different cases. Our desire and hope is to do good to the patient, and, as he unfolds his story, there arises in the mind of the listener an estimate, built on heaped-up experience, of how far and in what way that hope can be fulfilled. When I was a student, there were a good many physicians who were by habit sceptical of the benefits of treatment generally. I was never one of them, but confess, as we all must, that there were certain groups of cases, which now can often be relieved, whose treatment was undertaken without much expectation of benefit. Among these were the sufferers from habitual headache. So many headaches were regarded as chronic, recurrent, familial, or due to the nervous make-up of the subject, that they seemed to be evils to be borne, with such alleviation as a few simple medicines could afford, rather than a field for active inquiry and treatment.

It is usual and convenient in teaching or speaking of systematic medicine to treat of diseases. But in practice one is confronted with symptoms. Headache is a symptom. It may arise from many different causes and is a frequent complaint in all branches of medical work. The sum total of its effects must be enormous, in pain, in limiting the power of the sufferers, in the shirking of issues and the loss of pleasures. The depressing and limiting effects upon those around are also great. Sometimes a headache is so intense that it fills the whole field, is, indeed, the disease. Often it is, though distressing, more bearable, and at other times it appears to call for or receive little attention. It cannot be admitted that symptoms, or other phenomena, vary in import with their intensity; and the minor and transient headaches have on occasion their significance. But I am not now considering them.

It may seem rash, and of little use, for one who is not a neurologist to enter this field of inquiry. But the neurological causes of headache, though important, are few; whereas headaches are very common, both among sick folk and among great numbers who are in moderate health. Still bolder is it to write or speak of a subject which has been so well and thoroughly dealt with by observers of unusual care and discernment from ancient times down to the present. The grounds on which the following series of patients complaining of headache is discussed are: First, that, in addition to an unhurried clinical examination, opportunity was afforded of applying such scientific tests as were indicated. Secondly, the mode of life, diet and medicines were under individual care in a great number of the cases for weeks or months, so that the result of treatment could be tested in favourable circumstances. Thirdly, all the patients were observed and treated by the same group of physicians. Fourthly, an attempt is made at the numerical estimation of varieties. Fifthly, it has been possible, in a good proportion, to find out the after-history and present state.

In the ten years from January, 1925, to January, 1935, 4796 patients were admitted to Ruthin Castle. I am much indebted to Dr. Mary Watson, who read all the records and put aside those in which there was complaint of headache, in number 570. About 70 were cases of minor or infrequent headaches the notes of which give no data definite enough to be worth including in this analysis. It is to the remaining 500 cases that I propose to direct attention. The population, in the statistical sense, from which these figures were taken was composed mostly of adults from the class of business or professional men and women and their families, with a proportion of what are known as leisured folk. Many of them had been subject to the anxiety and stress, financial and other, which has been borne since the war by those in responsible positions, as well as by the whole community.

The general nature of the diseases for which these patients sought relief is shown in the following summary of an analysis of 7100 consecutive cases made some time ago by Dr. Mary Watson and Mr. A. J. Leigh, B.Sc.

One-third of the whole—namely, 2365 cases—were the subjects of disease or disorder of the heart, arteries, and veins. One-third suffered from diseases of the throat, œsophagus, stomach, and duodenum. With diseases of the pancreas, liver, gall-bladder, appendix, colon, and rectum added, just over a half were admitted for complaints of the alimentary canal and its accessory viscera. Other large groups were in the following order: arthritis and rheumatic diseases 670 cases, nervous diseases 558 cases; next, in order of numbers, affections of the lungs, diabetes, over- or under-nutrition, affections of ductless glands, kidneys, blood, skin, excess of alcohol, tobacco and other drugs, affections of throat and nose, prostate, womb and ovaries, bladder, and eyes. Then comes a long list of diseases of all kinds of which there were less than 71 cases, that is less than 1 per cent. of each.

Classification

To the general physician there is some danger of headache being an unclassified symptom, although Galen long ago began to put headaches in order according to where he thought the pain arose. There was presumption in his classification; and if there is less in that of others as knowledge increases, there is still a good deal. Certain clinical types stand out, such as migraine, uræmia, and cerebral tumour, but many headaches do not conform to a clinical type, and often we are not sure of the real cause of the pain. To think, however, of a headache, or of any symptom, in terms, so nearly as may be, of its cause, is a help to the physician; since his aim is to remove the cause as well as to allay the symptom. I began therefore to work with a scheme based on what is known of the anatomy, pathology, or psychology of each type, compiled from plans drawn up by Liveing, Auerbach, and more recently by Wilfrid Harris, Gordon Holmes, and Pavey-Smith.

Such a classification of a large series of patients was of absorbing interest, each case being put into its place with the idea that the main cause of the headache lay here or there or was this or that. The list grew and grew until at last it dawned upon me that I was making an inventory, not only of all diseases compatible with consciousness, but also of most of the other ills that flesh is heir to. Any classification to be useful in practice must be confined to main headings. I make, therefore, no further

* The Croonian lectures for 1935, delivered before the Royal College of Physicians of London on May 14th, 16th, and 21st. The lectures were illustrated by numerous case-histories and lantern slides.

apology for putting forward the following clinical scheme, which really made itself as the case-histories were perused.

All headaches here discussed are regarded as intracranial, that is, by the term headache we mean a pain felt inside the head. Neuralgias and pains of nerves serving the surface of the head, such as tooth-ache, face-ache, shingles, are not included unless there was also headache.

SCHEME (500 CASES)

		Cases.
I. ORGANIC:	Intracranial disease	26
II. VASCULAR	.. ..	50
III. TOXIC.	Nephritis, allergic, endocrine (including menopause), anæmia, alcohol, tobacco, other drugs	71
IV. REFLEX: and/or toxic.	Rheumatic (spine, muscles, and joints), diseases in head, chest, abdomen	150
V. FUNCTIONAL: sometimes recognisably reflex.	Migraine, asthenia, nervous exhaustion, neurasthenia, psychasthenia, mental	203

It will be seen at once that none of these divisions has a definite boundary, each tending to pass into the next group. For example, cases of disease of the blood-vessels in the brain in group II. might be placed in group I. of organic disease in the cranium; the headache of nephritis, which is classed as toxic, may be found with, or follow upon, the headache of hyperpiesis. The functional headaches again, and especially migraine, might, many of them, as will be shown later, be put in the classes above of reflex or of allergic headaches, whilst gradations of others are found leading through the neurasthenic group to the psychotic or insane.

It is uncommon to find a person with headaches who has not more than one obvious cause, mental or physical, of ill-health, to say nothing of causes that are not recognised. The placing of any case in any group has been therefore a matter of opinion and judgment, of the value of which the lecturer is far from confident. The result of treatment is of help. If one factor is removed or its influence lessened by any measure taken, and improvement follows, the view that it was one of the causes of the headache is supported. Groups of illnesses which are poorly represented are infectious diseases and septic conditions coming mainly under the care of surgeons. Headaches due solely or chiefly to gynæcological disorders are also probably under-represented. In the whole series, counting menopausal and menstrual headaches and other gynæcological conditions, there were 69 cases occurring among 309 women, or roughly 22 per cent.

The sexes were in the proportion of three women to two men, the figures being 303 women and 197 men. The average age of the patients on admission is shown in ten-year periods on Fig. 1. It will be seen that the women were rather more liable to headaches from 20 to 40, the men later, whilst after 60 the curves run together. The average age at admission of the persons in the different groups is shown in Fig. 2. The 103 migraine patients were divided into three groups according to the age of onset—before 20 (65 persons), from 20 to 33 (20 persons), and after 40 (11 persons). In 7 the age of onset was not stated. The youngest groups on the chart are those of the psychasthenic and asthenic, and then the 20 to 33 migraine group. The cases of migraine arising before 20 were admitted a little later on the average. Then come, as the age advances, various forms of reflex and toxic headaches, leading up to the groups of nephritis and cardiovascular disease in the sixth decade of life.

Organic Headache

There were 26 cases in this group, or 5·2 per cent. of the whole. The various diseases included tumour, hæmorrhage simulating tumour, meningitis, encephalitis lethargica, disseminated sclerosis, and headache after trauma. A chief feature of the more acute

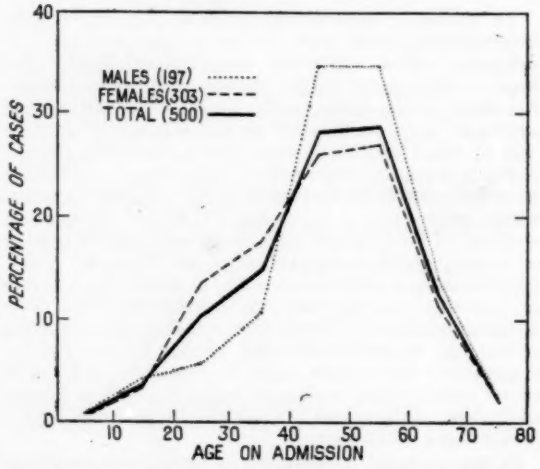

FIG. 1.—Age-distribution of patients admitted to hospital for headache.

and progressive intracranial lesions is the severity of the pain. Analysis of the cases shows the difficulty of diagnosis of tumour at an early stage and the danger of accepting a neurotic history as an explanation of present symptoms; also some recoveries after tumour, subarachnoid hæmorrhage, and cerebral syphilis.

Vascular Headache

HYPERPIESIS

In this group there were 37 persons, 24 men and 13 women. There were also 53 cases with raised blood pressure among the other groups, and especially the nephritic group, their headaches not being judged to be due solely or mainly to hyperpiesis. Thus in the whole series of 500 there were 90 cases of raised blood pressure. During the period under review of ten years 411 cases are indexed as suffering clinically from hyperpiesis. From that figure it would appear that under one-fifth of the cases of hyperpiesis were subject to headaches.

The site of the ache tended to be more frontal and vertical than occipital. The figures are—eyes, frontal, temporal, and vertical 20, diffuse or not mentioned 17, occipital or neck 10. Six of the female cases were at the menopause, a time of life when both headaches and a rise of blood pressure are likely to occur. Excessive use of tobacco is noted in 5 of the men, and of alcohol as well in 3. The association of nervous strain with hyperpiesis is close; in 15 out of the 37 patients severe nervous strain, business worry, or other anxiety was admitted.

Hyperpiesis in well-established cases has, of course, dangers that are not far away; in this series 10 of the patients had died within three years and 1 other, a severe case, seven years later. Nevertheless great and almost constant improvement in the headache and other symptoms can be obtained in this group by removal from the scene of anxieties, by regular rest

and exercise, diet, venepuncture, and other measures as called for. The blood pressure falls, the headaches lessen, and some cease. Thus, of the 37 patients, 8 were examined and advised but not treated. The remaining 29 came under treatment, and benefit at the time was obtained in all, and in many of the less advanced was maintained later. This result is remarkable, and in its completeness unexpected.

An active nervous man of 47 complained of headache, giddiness, and irritability. B.P. 240/140. In seven weeks' treatment the headache disappeared and the B.P. fell to 200/116. Two years later he was readmitted complaining of tingling in hands and feet and back of head. These symptoms also disappeared and he has followed a moderately active life for three years since last admission.

A raised blood pressure was detected at the age of 46 in an overworked intellectual married woman subject to severe responsibilities and strains. An artificial menopause was induced with radium. Admitted at the age of 53 with prostrating frontal headache with photophobia, nausea, and vomiting; also, between these attacks, a duller headache with giddiness. Cardiac hypertrophy, mitral leak. B.P. 205/120. Moderate secondary anæmia. During 2½ months' treatment the pressure fell steadily and all symptoms ceased. This lady returned to her home and duties which she was able to resume, and with intermittent periods of treatment carried on for six years longer, when cerebral hæmorrhage occurred.

The striking benefit which follows rest, freedom from daily worries, and other appropriate measures cannot fail to call for the further question—How much more could the lives and the mental and physical activity of such patients be prolonged if they did not return so soon as possible to their former circumstances? Many are obliged to do so. There are, however, not a few who regard any improvement as a sign that they may plunge again into the activities and habits they enjoy, when there is no need; whereas a continuation of a quiet régime would ensure a longer and more efficient life.

OTHER VASCULAR

A group of 13 cases of cardiovascular disease contains patients most of whom would probably be in the hyperpietic class were it not for valvular or muscular disease of the heart. These were cases of serious illness. The headaches were vertical, frontal, and diffuse—none occipital. Six responded well to rest and treatment at the time.

Toxic Headache

NEPHRITIS

The main group of headaches in the toxic class, of a prognosis as grave as that of the organic intracranial group, is the class of chronic nephritis. In this group were 21 patients, 16 men and 5 women. None gave a family history of headache. In the majority the headache was persistent or frequent, but intermissions are often complete. In the same period of time 72 other patients with chronic nephritis were admitted in whom headache was not a prominent symptom. All but two of the cases were the subjects of hyperpiesis. It is therefore debatable whether the headaches are due mainly to the high pressure in the arteries or to the deficient excretion of the kidneys. Uræmic and nephritic headaches as a rule start in later life. A previous history of headaches may obscure the diagnosis. Three of these patients, for example, had been subject to migraine with aura from childhood; and in one the nephritis had been unsuspected until it was advanced to uræmia.

The site of the ache in this group was mainly frontal, temporal, or diffuse. In only one was it confined to the occiput, though four others mentioned that region. All the headaches, except a migrainous one above-mentioned, were bilateral. The causes or accompaniments of headaches prominent in other groups were conspicuously absent in this one. For example, special nervous or psychical symptoms were noted in two only of these patients. Delay in the colon was uncommon, excess of tobacco is mentioned in four and alcohol in only three, in two of whom the excess was in former years. Retinitis and uræmia were frequent and 13 of the group are known to be dead.

The cessation of headache in this group, though a great relief to the patient, does not necessarily mean that the progress of the disease is arrested. The headache may disappear as may other symptoms in severe cases when the patient comes under hospital treatment; and a man who is passing quickly into uræmia may feel and look much better for a time. The relatives, when the gravity of the case is explained, wish to take him home, and sometimes persuasion has been needed to get the patient to agree without arousing alarm in his mind.

Other cases are of intermediate severity and respond well to treatment. Under a suitable régime they may live two, three, or more years free, or nearly free, from headache and other symptoms, and with a degree of efficiency for work. In a few, better results still may follow; and, rarely, an apparently severe case may recover. Such recovery is, in my experience, associated with an infection that could be removed. In the following example, sepsis about the teeth seemed to be the cause.

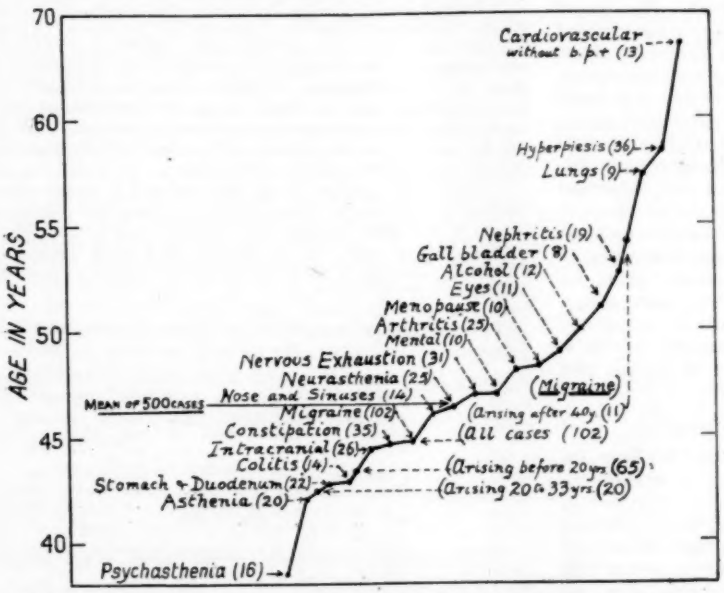

FIG. 2.—Average age of groups. The number of cases in each group is given in parentheses. Six cases of unknown age are omitted.

A man of 47, a hard worker in business and in public life, complained of a light feeling in the head which developed later into an ache. He was tired, irritable, and increasing in weight. Tobacco and alcohol were rather excessive, though not out of control. The B.P. was 210/120, the urine contained albumin and casts but gave a fair range of excretory power. In the fundi the arteries blocked the veins and there were retinitic patches and hæmorrhages. Many teeth were septic with apical abscesses. The outlook appeared grave.

The infected teeth were removed and a complete rest from work taken, with regular exercise, massage, and other treatment. In a month general improvement was manifest. The headache was almost gone and there were fewer inflammatory patches in the retina. The blood pressure had fallen to 180 and then to 150 systolic. There was less albumin in the urine, now no casts. Half a stone of weight was lost.

The patient returned home and lived very carefully for a long time, avoiding alcohol and smoking little. Later he began to take up public work again. He was seen five years after admission, looked and felt well, and was doing full work. It was difficult to recognise any abnormality in the retina.

In 34 cases of gout, 174 of diabetes, and 140 of anæmia of various kinds headache was uncommon. Among a group also of various fevers and infections headaches were frequent and variable, but called for no special comment.

HABITUAL HEADACHES

So far all the sufferers were the subjects of serious disease. Before passing on to consider the less dangerous forms of toxic headache, and the reflex and functional headaches, I will discuss briefly headaches which have become a habit. The causes of habitual headaches can be regarded as of three orders.

First, the tendency. This is often hereditary, and out of control of the doctor or patient. If, however, by any means the recurrence of headaches can be avoided or prevented it appears that the tendency may be lessened.

The second order of causes of headache includes any constant disease or abnormal state of body or mind which depresses the health. These are the conditions for which inquiry and search is made by the doctor. This is his field of work. The relief of such a disease, focus of infection or irritation, or mental anxiety may do much good. And if, as is common, or usual, there is more than one disorder, the relief of one factor only may be of much benefit.

The third order of causes of headache is that of the immediate exciting causes. The patient often, though not always, knows what is likely to bring on a headache. When he does not the doctor can help him to find out. The exciting causes, when ascertained, are, so far as may be, under the control of the patient.

The same kind of nervous or physical disorder may be either a constant or an exciting cause; examples are anxiety, overwork, eyestrain, or constipation. A study of the history, and the examination, usually lead to a definite view in this matter, which is confirmed or otherwise by the result of advice and treatment.

Nervous and Psychical Influences

The writings of those who are interested in observing any one morbid state or disturbance as a cause of headaches are often charming and convincing, whereas the laborious task of recording and reviewing a large number of cases is suited to a more humdrum and stolid mind. We have had in recent years able advocacy of various causes of migraine—e.g., of allergy, diet, endocrine dysfunction, eyestrain, and of psychical influence. All have an element of truth, but the factor to which the study of this series gives the largest volume of support is the nervous or psychical factor.

The frequency of mental stress as a constant and as an exciting cause of migraine has long been fully recognised. Such causes are, however, frequent in other forms of headache as well. In this series the records were taken impartially by different physicians with no tendency to any point of view, or knowledge that an analysis was going to be made. Nor was I predisposed to lay especial stress upon nervous influences. For many years, as occasion offered, I had drawn attention to the frequency with which, when a patient has been sent for observation or treatment as a neurasthenic, an investigation had shown that an undetected lesion had long been present causing the disturbing symptoms. Although most people would not rejoice to be told they had any form of organic disease, yet to one to whom nervous and psychical reasons had been offered for years to explain physical pains the relief was enormous. He had been, therefore, much interested to find that a definite nervous disturbance obvious or confessed, was recorded in the whole series in 228 out of 500 = 46 per cent. and in migraine in 51 out of 103 = 51 per cent.

The difference, therefore, is not great in this respect between migraine and other headaches.

Nervous influences, though they are mentioned in every group, are, as would be expected, less frequent in some. Such are the groups of organic intracranial disease, heart and vascular disease (though not hyperpiesis), nephritis, diseases of nose and sinuses, lungs, stomach, gall-bladder, and colon. In the groups of migraine, asthenia, nervous exhaustion, neurasthenia, the figures for recognised nervous stresses are naturally rather higher.

The subjects of nervous strain may be roughly classified as follows:—

First come the folk who are by nature unstable, the neurotic and the neurasthenic. These are upset by causes which in other people are followed by no recognisable result or reaction.

A second class includes those who have suffered undue strain from over-exertion, mental or physical. These include cases of nervous exhaustion and overtiredness. Neurasthenics are commonly told that they are suffering from nervous exhaustion. This is a pardonable kindness or compliment, and is true enough in one sense as they are exhausted easily by minor pains or strains. But in practice there can be a plain distinction between neurasthenia and genuine nervous exhaustion.

A third class contains those who are not so much overworked as anxious or worried, either about those dear to them, or business, or their own health, or other troubles.

The nervous state in the second and third groups is essentially acquired, with, in many, a degree of predisposition.

The numerical relations of these classes were as follows:—

I.	Neurotic	Nervous	56	87
		Neurasthenia	31	
II.	Tired	Nervous exhaustion	17	51
		Overtired from want of rest and various causes	34	
III.	Worried	Various worries	32	90
		Anxiety about others	31	
		,, ,, business	18	
		,, ,, own health	9	

The neurotic, obviously predisposed, class made up rather more than one-third of the whole.

The late Dr. F. G. Crookshank was an eloquent

exponent of the nervous or psychical influences in headaches. He wrote:—

"The man or woman who complains of migraine or of trigeminal neuralgia is, I think, without exception, placed in some situation that gives rise to an unexpressed or unrecognised emotion of, to use Adler's words, rage and humiliation."

Taking this statement in a very general sense it appears to be true in this series of about half the cases of migraine and nearly half of the cases of headache in other groups. That headache is bound with some unhappiness is not a modern idea. Dr. Crookshank quoted from the "Anatomy of Melancholy."

"Socrates, in Plato, would prescribe no Physick for Charmides' headache till first he had eased his troublesome mind; body and soul must be cured together, as head and eyes."

We are all bearers of the burden of disappointment and of lack of fulfilment in life or work. Some, from innate mental weakness, can carry but little, in others strength is worn down, whilst many are blessed with the power to bear and forbear.

There is a family similarity between a highly strung patient subject to migraine, or other form of headache, and other persons subject to odd days of depression, with or without alimentary disturbance. Such instability may be associated with unusual sense of atmosphere, and with vivacity and charm. People are apt not to look fairly at both sides of their own balance sheet. The assets—their gifts—they claim and rejoice in as a real part of themselves. The liabilities—limitations—they regard as outside them and ask the doctor to take them away—a very human attitude which must enlist the sympathy of each of us.

Does a placid self-contained person attain to quite the same skill or charm as he or she who is capable of depression, headaches, and despair, but can also rise to heights of skill, energy, or genius? The thought, whether justified or not, may be a comfort to all who have black hours.

If mental conflict, strain, anxiety, disappointment, or lack of fulfilment is so frequent as to be recorded in at least half of the cases of headache in this series, the question arises: How can such influences be lessened or abolished? Does the mere revelation, ventilation, and discussion of a conflict or a grievance relieve it? In some cases it is certain that it does. The novelists have never doubted. When the secret of iniquity, injustice, or suspicion is once out, there is general forgiveness or explanation; and the story soon comes to an end. In practice, however, many of the stresses revealed to the doctor, and particularly, perhaps, to a doctor who is at a distance from the patient's home, cannot be explained to those who, after the patient, are most concerned. Nevertheless, revelation still does good, a discussion may lead to advice which will help the sufferer to face difficulties and to remove them, and in many matters confession remains, now as always, good for the soul.

In the following cases, one in the group of nervous exhaustion and one of migraine, termination of a continual strain and conflict was followed by relief of headaches.

A widow of 57 with five children, with no family history ad rem, developed a periodic prostrating frontal headache which passed down to the bridge of the nose, relieved by the vomiting of mucus. There were symptoms of a non-progressive lateral sclerosis affecting both legs, especially the right, which dragged. W.R. negative. Caseous glands in the abdomen. A tentative diagnosis was that of scarring from an old intramedullary tuberculoma. There had been a great nervous strain, and the patient's circumstances were still full of daily worries from the senile irritability of a parent with whom she lived. With six weeks' treatment and encouragement there were only two less severe headaches. On returning home periodic headaches recurred. A change of circumstances with removal of the continual strain was followed by renewed health.

A woman of 28 had suffered in childhood from bilious attacks, preceded by seeing stars. She now sought admission for the relief of diffuse headaches. Omission of various foods had been tried without benefit. The home life was unhappy and unfulfilled. With later happiness and the birth of a child symptoms ceased, and five years after admission she is well.

The revelation, and in some the removal, of a recurring anxiety borne for years was followed in many other cases, as in the two quoted, with great benefit; but not in one or two. For some all strains may pass but that of memory, and who can estimate its force?

Rheumatic Headache

Passing over endocrine disturbances associated with headache at the menopause, with pituitary dysfunction, or with diabetes insipidus of pituitary type; and with mere mention of toxic headaches from alcohol, tobacco, heroin, and other drugs, I turn to a group of 26 persons, 18 women and 8 men, complaining of *headaches associated with rheumatic changes* especially in the spine and its connected muscles and fibrous tissue. In some no bony change can be detected in the joints. These are called fibrositis. In the acuter forms of lumbago and stiff neck they might be called fibromyoneuritis. In the more chronic cases there is stiffness and pain in joints, and sometimes creaking, and more or less bony change can be seen with a careful X ray examination. New formation of bone may, of course, press upon nerves emerging from the spinal column. It is surprising, however, how an advanced spondylitis may offer no painful evidence of nervous involvement, and sometimes much less restriction of movement than would be expected.

Many cases of fibrositis and arthritis of the neck and back are investigated with the hope of finding a focus of infection to which the rheumatic symptoms are secondary. In a proportion this search is successful and appropriate treatment leads to benefit. In others, and especially in arthritis of long-standing, it should be remembered, and before removing innocent parts of the body, that an original toxic process or focus may be dead and gone, leaving its damage behind it.

Most of the rheumatic headaches were intermittent, three persistent. The ache tends to be in the hinder part of the head, but it is not confined to that area. In 6 of the 26 it was entirely frontal or temporal. In one whose headaches did not begin till the age of 58, there was an aura of aphasia and spots before the eyes preceding attacks of dizziness and suboccipital headache. The association of overwork or other strain or nervousness was frequent, being noted in 14. In 10 of the 26 the diagnosis was fibrositis, no clinical or radiological evidence of arthritic changes having been recognised. Here is one such:

A man of 49 was wakened with aching in the neck and stiffness which developed into a headache and might last all day. Many of the teeth were infected and loose, and he was suffering from business and family anxieties. The cervical spine was normal to X rays.

The following is an example of a severe periodic headache, approaching the migrainous type, in a young man with fibrositis.

A man aged 32 years. Some pains around the spine began at about 15. At 21 the headaches began and,

according to the patient, had been made worse by a course of vaccines. They are severe at the back of the neck and all over the head "like nerves on fire," passing into the right side of the body and thigh, and may lead to vomiting. No aura. On examination no bony changes were found. The headache is more likely to come on if he sleeps late—a migrainous feature.

The following is a case of headache with arthritis of the spine and fibrositis:—

A woman of 61 complained of an occipital headache which had been getting worse for the past 15 months. She suffered also pains in the neck, right arm, and occasionally in the leg. There was moderate colonic delay and she was overtired with the care of an epileptic child. There was spondylitis of the fifth and sixth cervical vertebræ. With six weeks' rest and treatment, including ionisation, the headaches ceased.

The following is a case of a severe periodic headache without aura, nausea, or vomiting, arising in adult life, associated with cervical spondylitis, and responding to treatment.

A woman of 41. Influenza three times in six months at 25, after which headaches began gradually. At 35 an operation for retroverted uterus, and a year later the tonsils and some teeth were removed, without benefit to the headaches, which increased in severity and frequency, occurring with intervals of ten days to a month and lasting three days. The night before a headache there was usually discomfort in the epigastrium. About 4 A.M. she would wake up with a nightmare. Pain then developed in the head and neck, with weakness of the left arm and shoulder, which were sometimes tender and stiff. There was pallor, prostration, and photophobia. Some relief was obtained by complete rest, with little food and aspirin. The patient was tired, anæmic, and moderately constipated. There was cervical spondylitis. An attack which occurred under observation was arrested by complete rest, glucose, novalgin, and the use of a suppository. After examination a régime was advised, including regular rests, massage, and diathermy to the neck muscles, and a suitable diet for the bowels, and the patient returned home. Eight months later had had three headaches only, each following overtiredness. Liable to headaches 18 months after, but they are less severe and can be more easily avoided and controlled.

Other Reflex and/or Toxic Headaches

In a small group of cases secondary to disease of the ear the site of the headache was temporal, parietal, or occipital.

EYE-STRAIN

In occasional cases of disease of the eyes, such as glaucoma and iritis, the headache was frontal and vertical. Two of the patients suffering from acute disease of the eyes, needing immediate treatment, had been subject to headaches from childhood. Such a history should not prevent as careful a search as if there had been no headache before.

Eye-strain from errors of refraction is a well-known cause of headaches; and in a great number of cases in this series the eyes had been examined and glasses used for a long time. That may be the reason why the number of patients whose headaches appeared to be mainly due to eye-strain was small. There are a dozen or so in whom no other factor appeared to be of importance; and to these must be added several in whom eye-strain was one of two or more factors. The site of the headache in this group was behind the eyes, frontal or vertical. In one only was there an ache further back, in the neck, which was accounted for by some cervical spondylitis. In that case, however, the astigmatism was the important factor as the headaches were relieved by more accurate glasses. Nervous instability or strain was prominent in this group. Reading and sewing is mentioned, or is found on inquiry, as bringing on the headache. The time of onset is more likely to be later in the day. In one only, in whom there were other factors, was there the history, so frequent in most groups, that the ache came on waking. In several cases complete relief followed the use of suitable glasses. In some in which the causes of headache were multiple, or in which the errors of refraction were difficult to adjust, with muscular weakness, relief was partial but definite.

NOSE AND SINUSES

Nasal catarrh, with or without septal abnormalities and antral disease, was mentioned in 40 cases in this group of headache patients, and in the whole number of patients 125 times. In a group of 15 the headaches were ascribed solely to these causes. Men and women were in equal numbers, as they were also in the eye-strain group. Headache from this cause may be regarded as toxæmic or as a reflex pain. It was usually intermittent; in one only persistent. The following case illustrates these points:—

A man of 28 had suffered for 18 months from pain about the right eyebrow, and a vertical headache, sometimes passing to the left. Seven months ago both turbinate bones were removed with relief. Recently the headache had returned. It was dull, worse on lying down. He was inclined to fall forward on stooping. On examination he was tender above the bridge of the nose. Diagnosis: right frontal sinusitis, confirmed by X ray.

The deceptive intermittency of a headache from sinusitis is illustrated in the following two cases:—

A woman of 65, the subject of an ulcer at the lower end of the œsophagus, complained of a stabbing headache around the right eye, which was the seat of cataract. During the three months of a successful treatment for her ulcer the headaches vanished. Later there was recurrence and, after a tiring day, the pain became severe, extending to the forehead with a fifth nerve neuralgia. Pus was found in the right maxillary antrum. After its evacuation the headaches ceased.

A young woman developed right maxillary sinusitis after influenza for which a radical operation was done. Severe headaches with resulting faintness and giddiness, made worse by reading and sewing, continued, and all the teeth were removed. Two years later she was admitted with a right fifth nerve neuralgia, following a cold, and swelling of the right cheek. This subsided. The sinuses were reviewed by a rhinologist who was unable to locate the focus he believed to be present. A severe occipital headache then developed, and at operation the right ethmoid cells were found to be infected. Complete recovery. Eighteen months later the patient states that she is free from headache and "a different person."

Cases of headache which are relieved by correction of a deflected nasal septum are reported from time to time. There was one such in this series. In another operation was advised but the patient recovered without it, from treatment for the general asthenic state.

STOMACH AND DUODENUM

In organic disease of the stomach headache was infrequent. In a period of time during which 192 cases of gastric and duodenal ulcer alone were treated, also 57 cases of growth and large numbers of other diseases or disorders of the stomach and duodenum, there were 22 cases regarded as associated definitely with a gastric or duodenal lesion, 14 women and 8 men. The headache was prominent in all and, with three or four exceptions, was bilateral. The pain was usually in the forepart of the head. In two only was it occipital, one of hour-glass stomach, and one of an ulcer in the œsophagus just above the cardia.

Cases of gastritis, liable to be complicated, as regards the possible relation to headache, with

alcohol, tobacco, or other factors, all did well with treatment.

A patient with achylia and intermittent diarrhœa complained of a frontal headache which came on when he was tired or if the bowels were not open. He improved steadily with treatment, and four years later reports that headache is rare.

A direct relation of the headache to the gastric discomfort is clear in some of these cases.

Thus in a woman of 59 with gastric ulceration a right frontal headache came on with the abdominal pain, and ceased to do so after successful medical treatment.

In a case of hypotonic gastric delay the headache ceased within a month with treatment. Four years later the patient was free unless she ate unwisely.

In another young woman with gastric delay, due to obstruction from adhesions after an appendical operation, an ache over the eyes accompanied this feeling of fulness in the upper abdomen and was relieved by gastric lavage. After obstruction had been circumvented by operation the headaches and indigestion ceased and 2 st. was put on. Headache now occasionally only when overtired.

In one patient pain in the right side of the head was associated with abdominal discomfort from a duodenal pouch.

In speaking of rheumatic headaches an example was given of a severe periodic headache which developed in adult life associated with arthritis and anæmia. A similar development seemed in the case now to be related to follow gastric ulcer.

A woman of 31 had suffered about every fortnight for two years from a one-sided headache. There was abdominal discomfort and blurring of the eyes on the preceding day. In the morning the pain came on and lasted three days, ending in profuse vomiting, which was aided by drinking hot water. She was the subject of a gastric ulcer with much gastritis around it. With 11 weeks' treatment the stomach recovered. All symptoms ceased. Eighteen months later this patient is liable to a short and less severe headache at the period, but at no other time.

GALL-BLADDER

The relation of a diseased gall-bladder to headache has received attention recently. In a thoughtful paper with a review of a series of cases by T. C. Hunt it is suggested that in migraine the gall-bladder shares in the visceral stasis, such as may be observed in the stomach musculature during a severe headache, and is made more liable to yield to infection. The diseased gall-bladder is therefore regarded by him as possibly a result rather than a cause of headache. In this series the gall-bladder was known to be abnormal, or was suspected clinically, in 358 cases in the whole period under review = 7 per cent.

In the 500 cases of headache, in 17 stones were present, 8 were the subject of cholecystitis without recognised stones—i.e., 25 diagnosed cases of gall-bladder disease = 5 per cent. Disease of the gall-bladder, confirmed by cholecystography or operation, was not, therefore, more frequent in the patients with headaches than in others. There were 5 cases recorded among the 103 migrainous—the same proportion as in the headache cases in general.

The first clear case that came under my care was long before this series was observed. A man of 43 had been subject to migraine, beginning with a central scotoma, since he was 13. Attacks were recurring every few weeks. Gall-stones were present, the removal of which restored him to health. In this case we have a good example of what I have called the second order of causes of headache. The migraine had been recurring for 30 years, and it is probable that the gall-stones had been present for only a part of that time. Nevertheless, the removal of the irritation, or toxæmia, from the gall-bladder was of benefit to the migraine.

APPENDIX

That reflex or toxic headaches may occur in appendical disease is well recognised. Two examples are here given of chronic recurring headaches, one, with a history of nine years, in a boy, and the other in an elderly person.

A boy of 13 had suffered every 10 to 14 days since he was four years old from a frontal headache. One of these attacks, which was observed, began about 11 A.M. with sore feelings in the eyes. The pain soon became severe, and at 2 and 3.30 he vomited, the headache passing off about 6.30 P.M. He was frail and highly strung. The blood-sugar was normal in the attacks. X ray examination showed a bulbous appendix. After its removal he had one "sick turn." Nine years later his family doctor writes that he has had no headache since.

A woman of 60 had had appendicitis and jaundice, each twice, and separately. She complained of headache across the eyes, nausea, poor appetite. Pain in a recent feverish attack had settled in the right lower part of the abdomen, which was tender. With X rays the appendix did not fill and its site was tender; the gall-bladder gave a poor shadow with dye. Operation was advised, at which a diseased appendix was removed. The gall-bladder was healthy. Pleurisy delayed recovery. A report six years later says she lives a busy life and hardly ever has a headache.

COLITIS

Headache occurred in 16 per cent. (61 cases) of the 369 cases of colitis in the period under review. Many were complicated, but in 14 cases of various forms, including mucous, post-dysenteric, and ulcerative colitis, the headache was ascribed to the colitis, and improved with it.

CONSTIPATION

The relation of constipation to headache is universally known, the relief of headache and malaise by aperients being a commonplace of household medicine as well as the basis of considerable vested interests. Instances of temporary relief of headache by evacuation of the bowel are frequent in all groups of headaches. In habitual constipation also an aperient empties the bowel and relieves quickly an associated headache. It does nothing to cure constipation but tends to perpetuate it, replacing the natural stimulus and its resulting muscular efforts, both intestinal and somatic, by a foreign stimulus and an evacuation often abnormally loose and complete. If a regular habit can be established without irritative aperients, the recurring headaches can often be avoided.

In this series the complaint of constipation was usually confirmed or otherwise by ascertaining the rate of passage with barium, or, in a few instances, with charcoal. There are those who complain of constipation, and take aperients regularly, in whom the rate of passage is normal. These are not included.

A great many people are, of course, constipated who do not have headaches. In this series constipation was recorded in 170 out of the 500 cases. In many the headache was regarded as due mainly to other conditions. In a group of 35 it was attributed to the constipation, a conclusion which was usually justified by the result of treatment. Of this group 26 were women and 9 men. In none was there a history of headaches in early life. The site of the pain was in the fore part of the head, or diffuse—e.g., behind the eyes 10, frontal 8, temporal 4, vertical 2, &c. In 3 only was it confined to the occipital or suboccipital region. In 5 premonitory symptoms were mentioned, but none were entirely

typical of a migrainous aura. Specks, stars, dizziness in the neck and on the right side, feeling ill and out of sorts and being "able to tell when a headache is coming" were among the details mentioned.

Some examples may be given:—

A woman of 58 complained of "perpetual" occipital headache, which was relieved only when the bowels were opened by aperients.

A woman of 22 complained of constipation since the age of 16. If more than four days passed without an action a headache developed with nausea and vomiting, obliging her to go to bed. With suitable treatment a regular action of the bowels was established without irritative aperients, and there were no more headaches.

The following is an example of severity both of constipation and headache:—

A young woman had always been subject to constipation which grew much worse after hysterectomy at the age of 30. Headaches then began and became severe. They occurred once or twice a month, coming on in the early morning, or at any time, above the eyes, and lasting two to three days; relieved by lying in the dark, and aspirin. On admission at the age of 39 aspirin was losing its effect. With remedy of habitual constipation the headaches ceased, and four years later have not recurred.

It will be understood that my experience is largely with severe cases. In milder ones the treatment need not be institutional. It must be admitted, however, that patients who have been subject to habitual constipation for years are inept followers of any régime except that of purges, unless carefully controlled and encouraged.

A woman of 54 had suffered from headaches for ten years, worse the last year. They were occasional only, about every two months, but severe, confining her to bed for three days with nausea, pains in the back, and vomiting. There was much delay in the colon. Aperients were taken weekly. There was a mild secondary anæmia: 75 per cent. Hb, 3,800,000 red cells. After the period of observation a régime was suggested, and was continued by her medical adviser with a good result, confirmed by a recent report six years later.

There is, of course, a tendency for headaches to cease with advancing age; but in many of these cases that factor can be excluded, for patients of all ages have found repeatedly that a relaxation of the routine of regular effort and suitable food has led to return of constipation and headache.

In not a few there are complications, but it is important to treat constipation always, as that treatment alone may do much good.

Thus, an active intellectual woman of 47 complained of left-sided and suboccipital headache, especially when sleep was poor. She was the subject of valvular disease of the heart, and the blood pressure was 185/100. Treatment was directed to the vascular state as well as to the bowel, in which the delay was mostly rectal. She did well in two months' treatment. Nine years later her doctor writes "the acute headaches disappeared together with the constipation."

Especially resistant are the cases in which visceroptosis and lack of muscular tone have led to the latter part of the large bowel becoming bunched up in the pelvis, sometimes adherent. In some of these, with time and perseverance, a good result may yet be attained.

Thus in a woman of 29, who had become an invalid, with constipation, backache, and a "full" diffuse headache, in two months, with physical and tonic treatment and encouragement, regular actions were obtained, accompanied by steady improvement, which has continued.

(To be concluded)

GOLD TREATMENT OF RHEUMATOID ARTHRITIS

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THE belief in a relationship between tuberculosis and certain forms of chronic arthritis has existed on the Continent for many years, and as a result of this belief chrysotherapy has been extended to the treatment of rheumatoid arthritis with considerable success. Among others, Forestier[1] and Coste[2] in France, Umber[3] and Zimmer[4] in Germany, and Secher[5] in Denmark, have had a wide experience of gold as a remedy, and they appear to be satisfied that it is a distinct advance in the treatment of what had come to be regarded as an almost incurable malady. In this country, however, it appears to have been little used; there is no reference to it in recent editions of standard text-books, it is not mentioned in Ray's monograph on rheumatism[6] and the report of the British Medical Association Arthritis Committee[7] only mentions its use abroad and states that reported "beneficial results have not been confirmed." The only important British papers are those of Slot and Deville[8] and of Pemberton[9] (which has been published during the preparation of this report), although Buckley[10] mentions chrysotherapy and speaks of promising results in a limited experience of its use.

Having seen some of the satisfactory results obtained in continental clinics and being impressed with the poor results usually achieved by other methods, we determined a little more than two years ago to give the new form of treatment a thorough trial. This paper is based on our experience of chrysotherapy both in private practice and with hospital cases in the arthritis clinic of the Leeds Public Dispensary and Hospital. In the selection of cases obvious secondary infective arthritis (e.g. gonococcal) and osteoarthritis have been excluded and we have accepted for treatment all other forms of subacute or chronic polyarthritis, irrespective of age and sex. The majority have shown constitutional disturbances at some stage of the illness and we have accepted this, together with an increase in the blood sedimentation rate and X ray changes in the bones of the affected hands, as supporting criteria for the diagnosis in a large number of cases. No further selection has been made nor have any foci of infection been searched for or treated, other than the most obvious sepsis requiring treatment on its own account. Auxiliary methods of treatment such as physiotherapy, electrical treatment of various kinds, and massage have not been employed, and pain-relieving drugs of the aspirin type have rarely been prescribed.

Our results concern the treatment of 100 cases and cover the period April 1933 to March 1935 inclusive. An ætiological and clinical analysis is presented together with the results of treatment.

ÆTIOLOGICAL AND CLINICAL ANALYSIS

Age and sex.—There were 16 males and 84 females. Age-distribution at the onset of the arthritis and when treatment was commenced was as follows. There was no significant difference between males and females as regards age at onset.

Age group.	At onset of arthritis.	At commencement of gold treatment.
10–19	5	0
20–29	19	8
30–39	24	20
40–49	21	28
50–59	25	27
60–69	4	16
70 or more	0	1
Unknown	2	0

The *duration* of the arthritis was very varied and ranged from one month to 37 years. There were 17 cases in which the arthritis had existed less than one year, 21 from one to two years, 22 from three to five years, 19 from six to ten years, 15 from eleven to twenty years.

There was a *family history* of rheumatoid arthritis in blood relations in 20 cases and a history of rheumatic fever in 6. In 5 cases the patient had been suspected of pulmonary tuberculosis in the past, in 17 cases there was a history of tuberculosis in a blood relation, and in a further 5 there had been close contact with pulmonary tuberculosis. Thus, for what it is worth, there is an association with tuberculosis in 27 cases.

Physical type.—We did not find any predominance of a particular physical type. The cases were equally divided among individuals of slight, medium, and heavy build, but with regard to colouring 80 were dark or medium and 20 fair.

Type of onset.—The onset of the arthritis was acute in 65 cases and chronic in 35. In 64 there was considerable constitutional disturbance with marked loss of weight, debility, slight anæmia, &c. at the onset, while similar disturbances developed at a later date in another 9. In the remaining 27 there were no constitutional disturbances.

The joints most commonly affected at the onset were the small joints of the hands and feet—namely, in 39 cases (hands 24, feet 15). The next most common sites of onset were the knees 18, shoulders 11, ankles 9, spine 6, hips 4, elbows and wrists 3 of each. In 8 cases multiple joints were affected at the onset and in a further 5 the onset was generalised.

Progress.—The disease had usually spread to involve more than one joint. It had pursued a variable course, with exacerbations and remissions, in 20 cases. In 10 there had been rapid progression and 70 were getting gradually worse.

Previous treatment.—In order to show the effectiveness of gold, we have recorded the previous treatment (other than drugs) and the benefit obtained. The number of patients who had previously had one or more forms of treatment was 62. Of these 34 had had spa treatment, some on several occasions and usually at Harrogate, but only 5 of these claimed any lasting improvement. Diathermy or radiant heat had been given in 29 cases, and vaccines in 25. Nine of these 25 had had Warren Crowe's vaccine and 2 only claimed some relief; the remaining 16 had stock or autogenous vaccines of various kinds, 3 of whom thought that these had helped. Courses of massage had been given in 18 cases. In a further 17 focal sepsis had been treated, but in only one was any improvement claimed. Protein shock therapy had been used in 4 others with little effect, and 3 had been subjected to orthopædic procedures.

The *joints affected* at the time treatment was commenced were the fingers 94, knees 89, ankles 84, wrists 82, shoulders 82, feet 68, elbows 65, cervical spine 51, hips 45, lumbar spine 45, temporomaxillary 41, sternoclavicular 37, dorsal spine 33. For the sake of brevity no attempt is made further to subdivide the particular joints affected in the hands and feet.

Associated disturbances.—In 85 cases the pulse-rate was above the normal; in 33 it was between 80 and 90, in 12 between 90 and 100, and in 40, 100 or more. The blood sedimentation-rate was estimated before treatment in 78 cases, the Westergren method being employed. We have allowed a sedimentation-rate of up to 9 in the first hour as being normal. The rate was increased in 67 cases (86 per cent.). The actual increase in sedimentation-rate was 10 to 19 in 22, 20 to 29 in 14, 30 to 39 in 13, and over 40 in 18. We found 7 cases with anæmia, 13 cases had a markedly raised blood pressure, and 4 of these had slight albuminuria. Three patients had psoriasis, 1 diabetes, 1 a curious dystrophy of the nails, and 1 chronic chorea.

X ray appearances.—The hands were radiographed in the majority of cases but we do not intend to present any analysis of the radiological findings in view of the recognised difficulties in their interpretation.

METHOD OF TREATMENT

We have favoured the intravenous method of administering the gold salts using gold sodium thiosulphate, usually in the form of Crisalbine. Occasionally the intramuscular preparations Myocrisin and Solganol B. Oleosum have been employed, the use of these being limited to those patients in whom the superficial veins were small and the injections difficult.

During the two-year period we have given 1147 injections of gold salts, and of these 1027 were intravenous and 120 intramuscular; of the intramuscular injections 57 were solganol and 63 myocrisin. The total weight of gold salts thus administered was 198 grammes, given in 150 courses. The largest quantity of gold given to any one patient was 13·9 g. of gold sodium thiosulphate in 41 injections, comprising 4 courses spread over a period of two years. So far as gold sodium thiosulphate is concerned we adopted the following scheme of administration; 0·05 g., 0·1 g., 0·2 g., and thereafter 0·2 g. at weekly intervals until a total of not more than 2 g. had been given. This procedure, however, was widely varied from patient to patient, according to the particular reactions and the response. Depending on the progress of the case two, three or more courses were given, with an interval of at least six weeks between courses.

REACTIONS

Painful exacerbations in the joints occurred in 47 cases, and in 45 of these the pain was felt after one or other of the first six injections, but not later. Two cases had delayed pain reactions, both after intramuscular injections. The pain was usually noticed in the joints within 48 hours of the injection and lasted two or three days; quite frequently the pain was most severe the fourth day after the injection. We have come to regard such pain as a very good prognostic sign, and although our figures are not yet complete in this respect we can say that over 80 per cent. of patients who had such painful reactions went on to marked improvement or apparent cure.

The toxic reactions following the administration of gold have received wide publicity both in the lay and medical press. For this reason we have carefully recorded all the toxic manifestations encountered with regard to character, frequency, severity, and time-incidence. Toxic reactions have been observed in 45 of our cases in the following approximate

order of frequency. The commonest reaction was a generalised pruritus which occurred in 36; of these 28 developed erythema and in 4 this went on to desquamation, in 1 case severe and generalised. Diarrhœa developed in 10 cases and 3 of these had abdominal colic. Soreness of the mouth was complained of in 9 cases and 3 of these went on to ulceration and complained in addition of a persistent unpleasant taste, while 2 others complained of dryness of the mouth. In 4 cases vomiting occurred within a few hours of the injection and 1 patient had immediate nausea without vomiting.

The urine was tested in every case at the beginning of treatment, in many cases before each injection, and in all cases showing toxic reactions. Albuminuria accompanied other toxic reactions in 12 per cent. of cases and occurred once as the only toxic reaction.

We have seen isolated examples of hyperkeratosis of the soles, pustular dermatitis of hands and feet, labial œdema, herpes zoster, erythema nodosum, lichen planus and purpura, all of which have been observed by others.[11] [12] We have not encountered any toxic manifestations in the central nervous system.[13] We have been impressed by the fact that all these reactions were not delayed but developed within a week of the last intravenous injection.

We have not been helped by the use of sodium thiosulphate, either by mouth or intravenously, in the prevention or amelioration of toxic symptoms; we have formed the impression that it is of little or no therapeutic value, and in the treatment of toxic disturbances we have relied entirely upon symptomatic measures.

Three of our patients have died.

The first was a woman, aged 32, who defaulted, having received 8 injections of crisalbine (total 1·0 g.), with much improvement of her arthritis; three months after her last injection she developed a sore-throat and she was admitted to St. James's Hospital when her total leucocytes had fallen to 2000 per c.mm. with agranulocytosis. She died after ten days and an autopsy was carried out by Dr. C. J. Polson who found the characteristic changes in the fauces and bone-marrow of agranulocytic angina. There was no evidence that this patient had taken amidopyrin. It is doubtful whether gold salts were the cause of this blood dyscrasia, for we have not seen delayed toxic symptoms after *intravenous* injection. At the same time we realise that gold has been held responsible for agranulocytosis. Toxic symptoms are, of course, delayed after *intramuscular* injection (e.g., Holmes[14]).

The second was a woman, aged 45, who had been crippled with arthritis for thirteen years. She had been treated with Warren Crowe's vaccine on and off for ten years without improvement. The preliminary tests as to suitability for gold treatment showed no contra-indications. She received two injections of crisalbine, each of 0·05 g., after which she immediately developed an itching erythema which went on to generalised scaling, a condition which lasted a month. The arthritis improved but no further gold was given as the immediate reaction after small doses suggested an idiosyncrasy and was unlike the toxic reactions with which we were familiar. Five months later, despite the knowledge of this severe upset, the patient was so impressed by the improvement seen in other patients that she persuaded us to recommence gold treatment. She was given a preliminary injection of 0·01 g. crisalbine, one-fifth of the usual initial dose, followed by a further four doses, making a total of 0·36 g. After the fifth injection she developed a fine petechial rash, and a week later there was a sparse purpura on the face and limbs; during this week there had been recurrent epistaxis and vaginal hæmorrhage. The blood count was now: red cells, 2,920,000; hæmoglobin, 40 per cent.; colour-index, 0·7; leucocytes, 8400 (85 per cent. polymorphs). Immediate admission to hospital was advised but for personal reasons this was refused. Ten days later she had a severe hæmatemesis, and the next day she was admitted to hospital moribund; she died before blood transfusion could be carried out. The blood count on admission, an hour before death, was: red cells, 2,540,000; hæmoglobin, 40 per cent.; colour-index, 0·8; leucocytes, 8700; the platelets had fallen to approximately 38,000.

A partial autopsy revealed multiple acute hæmorrhagic erosions of the gastric mucous membrane and there was altered blood in the intestine. Most of the viscera showed petechial hæmorrhages. The spleen was enlarged, the malpighian bodies standing out with a remarkable degree of pallor against the congested pulp. The left renal pelvis showed a large area of hæmorrhage extending into the calyces. The bone-marrow appeared normal in the clavicles, sternum, and ribs. There were multiple small hæmorrhagic infarctions in the lungs and considerable pulmonary œdema. The brain was not examined.

The third case was that of a woman, aged 63, who had suffered from arthritis for five years. The preliminary investigations showed a normal urine, blood-urea, and blood pressure; the sedimentation-rate was 34/58 and the pulse 98. She was given 4 weekly injections of crisalbine (total 0·85 g.), after which she was given myocrysin (intramuscular) owing to injection difficulties; she had five injections (total 0·95 g.) which were followed by itching erythema; after an interval of two months she had 4 more injections (total 0·6 g.) followed by a similar rash; after a further two months she was given 5 more injections (total 0·75 g.), making a total of 2·3 g. of myocrysin. The treatment covered a period of one year and was followed by "wonderful improvement." Seven weeks after the last injection she developed hæmaturia and later hæmatemesis, for which she was admitted to St. James's Hospital; a few petechial hæmorrhages were noticed on admission. Hæmaturia continued and the patient died after three weeks. An autopsy was again carried out by Dr. Polson who found subdural and sub-endocardial hæmorrhages, with blood in the stomach, intestines, renal pelvis, and bladder. Death was clearly due to purpuric hæmorrhage.

In reviewing these three deaths it is of interest that all have resulted from blood changes. We have no doubt that death in the second and third cases was directly due to the effects of gold, both patients dying of purpura. Compared with our other cases the second death followed very small doses and the third case had only received an average amount of gold; both women had previously shown cutaneous sensitivity of the common type. It is unfortunate that these cases did not come under our care during the terminal illness, and in no case was specific treatment instituted, such as pentose nucleotide in the first case or blood transfusion in the other two.

RESULTS

It is difficult to give a satisfactory classification of the results of treatment in chronic arthritis. A number of our patients were almost bed-ridden, incapable of dressing, washing, or feeding themselves and unable to walk; many had been in this condition for years, despite innumerable forms of treatment. Most of these cases have shown a remarkable improvement, often approaching a return to normal; but so long as there was any joint pain we continued treatment and such cases have been classified "marked improvement." For example, the patient who received the largest quantity of gold (13·9 g.) had been for four years unable to wash or feed herself and could only hobble a few yards on two crutches when treatment was commenced two years ago. At the present time she has no disability in her upper limbs, walks freely and unaided, and only complains of pain and stiffness in the right ankle; for this reason she is classified "marked improvement" and not "cure." It is interesting that this patient has become pregnant

for the first time for fourteen years. We are convinced that no case is too far advanced to expect some improvement from chrysotherapy, though of course complete cure is more likely in early cases. Gold has no effect on ankylosis or subluxation.

Ten patients have been discharged as apparently cured—that is, with complete freedom from pain and disability other than that due to bony ankylosis. Most of them were severely crippled before treatment was commenced. Fifty-six cases are classified as "marked improvement"; this often gives but a poor impression of the degree of recovery, but all these patients still have some pain or disability and most of them are still being treated. Twenty-two have shown "slight improvement"; of these only two have completed one full course of treatment. Five, none of whom have completed a course of treatment, show no improvement in their arthritis. The remaining 4 patients defaulted at the beginning of treatment.

	Cases and per cent.
Apparent cure	10 (10·4)
Marked improvement	56 (58·7)
Slight ,, ...	22 (23)
No ,, ...	5 (5·2)
Died	3 (3·1)

In addition to the improvement in the arthritis there is usually a striking improvement in general health. Of 69 patients with significant upset of general health 51 showed marked improvement, 16 slight improvement, and 2 no improvement; none of the last two groups have completed a full course of treatment. In every case there has been improvement either in arthritis or in general health. There is usually a marked fall in the pulse-rate and blood sedimentation-rate after treatment. In the case of the diabetic patient her arthritis, which had been progressive despite all previous treatment, made a striking recovery and she was able to reduce her insulin from 28 to 6 units daily.

DISCUSSION

Gold has been used in the treatment of pulmonary tuberculosis since 1916 and the wide variability of tolerance of the individual has always been appreciated. There can be no doubt that at present we have no practical means of determining the optimum dose for the individual. In the case of tuberculosis we may cite Shaw,[15] who in 1930 referred to the previous "heroic dosage" employed and then proceeds to recommend three weekly doses of 1·0 g. of gold sodium thiosulphate, the total course consisting of 4·6 g. On the other hand the dermatologists have used minute doses of gold in the treatment of lupus erythematosus and have also occasionally noted toxic reactions.[11] Our own dosage has usually been midway between these extremes, and at the present time we are investigating the effects of still smaller doses.

Despite the frequency and occasional severity of the toxic reactions we have continued to use chrysotherapy. These unfortunate effects can in no way alter the fact that many patients have made a remarkable recovery. There can be no doubt that chrysotherapy is a most important advance in the treatment of what was so frequently an incurable disease, and like most other advances in therapeutics the experimental stages are being attended by occasional catastrophes. Despite these drawbacks we feel that gold gives more favourable results than any other single form of treatment and that it is curative and not merely palliative.

CONCLUSIONS

1. Chrysotherapy in relation to rheumatoid arthritis is still in the experimental stages, but we believe it to be the most important form of treatment. We have treated 100 cases over a period of two years with excellent results in 70 per cent. and some improvement in 90 per cent. of cases; these included many long-standing cases with gross disability.

2. Owing to the marked variation in susceptibility no rules as to dosage can be laid down and treatment must be individualised. In some cases treatment must be prolonged for two years or more. Probably the doses employed are still too large and it is possible that the interval between courses should be not less than three months.

3. Toxic reactions have occurred in half our cases. These are usually mild and do not contra-indicate further treatment. Hæmorrhagic reactions and exfoliative dermatitis, however, may be fatal and no more gold should be given to patients who develop them. Other than gross renal or hepatic disease, we have found no absolute contra-indication to chrysotherapy before the onset of these serious reactions.

4. Chrysotherapy should only be undertaken by those who are fully alive to its dangers. The patient should be warned of these possibilities. The urine should be tested before each injection. Especial care must be taken after the occurrence of toxic reactions. It is essential that every patient should be seen every week during, and for three months after, each course of treatment.

We wish to express our thanks to the almoners department of the Leeds Public Dispensary and Hospital for enabling us to keep close contact with out-patients.

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GOLD TREATMENT OF TUBERCULOSIS

A STATISTICAL STUDY

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IN attempting to assess the value of any form of therapy for pulmonary tuberculosis in sanatoria peculiar difficulties are encountered. The results of treatment differ in every case, according to the previous duration of illness, the age of the patient and the type of disease. The method of using a new treatment for alternate cases is not applicable, since some of the cases would be moribund and others so slight that rapid improvement might be expected

with ordinary treatment. If any method of selection is used an imponderable error is introduced.

To eliminate the age factor we have put together the results of treatment in one age-group only, 16–26, during the past five years. This group contains the highest proportion of cases considered most suitable for chrysotherapy by all observers. Over the whole period one-third of the cases, and during the last three years, one-half have had gold in the form of Crysalbine, Allochrysine or Myocrysine in the usual weekly doses of 0·1–0·5 g. for six to eight weeks, followed in many by a repeat course after an interval of six weeks. During the past three years those not treated with gold have been slight cases or cases with pleural effusion in whom the prognosis was very favourable without special treatment, or moribund cases. Taking the whole group into consideration, whether they have received gold treatment or not, an improvement in the results of a five years' working should be evident if gold were of any value, compared with a similar control group in the previous five years, other factors being equal. The number of cases treated by artificial pneumothorax are approximately equal in both groups. Dr. C. J. C. Faill, the tuberculosis officer who is responsible for allocating cases to our institution, informs us that the cases sent to us have been chosen on the same basis during the whole ten years—another institution receiving the majority of the earlier cases.

TABLE I.—*Pulmonary Tuberculosis in Bristol*
(Age-group 15–25)

Year.	Notifications.	Deaths.	Percentage of deaths to notifications.
1925	195	121	62
1926	186	133	68
1927	175	143	81
1928	177	123	69
1929	153	90	58
1930	159	89	55
1931	161	86	53
1932	129	53	41
1933	163	78	48
1934	132	54	41

Where the test and control series are not contemporary one has to consider the trend of mortality of the disease in the area from which the cases are drawn. Prof. R. H. Parry has kindly provided us with the figures of notifications and deaths in an almost identical age-group, 15–25, in Bristol during this ten years (Table I.). From these it is evident that while the number of notifications is diminishing, the percentage of deaths to notifications is decreasing more rapidly, which suggests that the disease is becoming less fatal in this age-group in Bristol. This factor should show itself in our figures in an improvement in the results.

TABLE II.—*Control Group* (1925–29) *Before Use of Gold*
(Age-group 16–26)

—	Died.	Worse.	Non-quiescent (improved).	Quiescent.	Total.
1925–29 ..	104	62	177	147	490
Percentages	21·224	12·653	36·122	30	—

On comparing the test and control groups (Tables II. and III.) it will be observed that the differences in the results of treatment in the two series are statistically negligible whether based on the whole five years during which one-third of the cases received gold or in the last three years when one-half of the cases had gold. One can only conclude that gold treatment is of no appreciable value.

TABLE III.—*Test Group Treated with Gold* (1930–34)
(Age-group 16–26)

—	Died.		Worse.		Non-quiescent (improved).		Quiescent.		Total.	
	Gold	No gold	Gold	No gold	Gold	No gold	Gold	No gold	Gold	No gold
1930–34	35	108	21	35	63	71	52	107	171	321
	143		56		134		159		492	
Percentage results.	29·07		11·3		27·2		32·3		—	
1932–34	26	53	13	18	58	28	50	53	147	152
	79		31		86		103		299	
Percentage results 1932–34 only.	26·4		10·3		28·7		34·4		—	

The examination of our statistical results has been a painful shock, for we were convinced whilst carrying out this costly method of treatment that in chrysotherapy we had found a valuable aid; many of the cases seemed to do extremely well. But one tends to forget that many cases previously did extremely well even without gold. It is to us a sad reminder of the extreme fallibility of clinical judgment when exposed to the cruel light of a controlled statistical inquiry on a large number of cases.

POST-OPERATIVE INTRACRANIAL THROMBOSIS IN CHILDHOOD

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INTRACRANIAL thrombosis may occur in children, as in adults, after local operations for conditions such as mastoiditis; but intracranial complications following two operations so different as herniotomy and the extraction of teeth stimulates search for other cases.

Schwenninger[1] in 1910 stated that classical thrombophlebitis after operation was never seen before puberty—unlike septicæmic thrombophlebitis, which attacks infants. Schnietzler[2] agreed with him. Schwenninger's statement, however, was too sweeping, though he brought out the useful distinction between septicæmic and non-septicæmic cases. Case 5, of the series here described, exhibits a classical, but not a fatal, pulmonary embolism. The records of about 11,500 post-mortem examinations made at the Hospital for Sick Children, Great Ormond-street, between 1860 and 1934, contain only one other case of post-operative pulmonary embolism, but there were two septicæmic intracranial thromboses, both following operations for cleft palate. There were also three cases of intracranial thrombosis after "clean" operations, two of them herniotomies, the other Loreta's operation for pyloric stenosis. In two further cases there was infection at the site of operation, but septicæmia was not demonstrated. In another there was septicæmia, but it was probably due to septic thrombosis. All occurred in this century, the age of major surgery. The superior longitudinal sinus was most commonly affected (5 out of 8 cases).

Little attention has been paid to this complication of pædiatric surgery: Byers and Hass[3] mention three cases but give no details; Wyllie[4] recognises the occurrence, and there is a good short account in Garrod, Batten, Thursfield, and Paterson's text-book,[5] in which three of the cases described here are instanced.

SEPTICÆMIC CASES

The first type then is the septicæmic, illustrated by the following:—

CASE 1.—A girl, aged 2 years, was admitted to the Hospital for Sick Children under Mr. Collier on March 2nd, 1910, for repair of a cleft palate which had been operated on eighteen months before. On March 4th a flap operation was performed. In the evening the patient vomited and collapsed. Two days later the temperature was 104°, tremor of the arms and legs was noted, the knee-jerks were present, ankle-clonus could be elicited, there was paralysis of the right internal rectus muscle. Next day the child was drowsy, temperature remained high, and she died on the 9th.

Post mortem, the superior longitudinal sinus was found to contain pale clot, and the parietal and temporal cortex was congested and œdematous. There were petechial hæmorrhages under the pleura of the collapsed lower lobe of the left lung; the endocardium was stained a brick red; the liver was large and fatty; the spleen large and semi-diffluent. Post mortem culture of the heart's blood produced streptococci.

This demonstrates the fairly early affection of the motor areas, which Byers and Hass found usual, due to interference with their venous drainage by clotting in the superior longitudinal sinus. Case 4 also shows this.

CASE 2.—A boy, aged 3 years and 7 months, was admitted to hospital under Mr. Barrington-Ward on Jan. 23rd, 1931, for repair of a cleft palate which had been operated on three months before. On Jan. 28th it was resutured, but by Feb. 3rd it had again broken down. Three days later the temperature was high, there were signs of pharyngitis and bronchitis. Subsequently the temperature swung between 102° and 104°. On the 17th blood culture produced a pure growth of hæmolytic streptococci and death occurred a few hours later. The autopsy disclosed ante-mortem clotting at each end of the superior longitudinal sinus, and in some of the veins leading to it. There was no staining of the endocardium, the liver and kidneys were very pale, the spleen large and diffluent.

Symptoms of the thrombosis were in this case masked by the general infection. Thrombosis was not due to local infection from the palate, for the superior longitudinal sinus only was affected, and it seems probable that it was secondary to the septicæmia.

In the next case to be described there was also a wound infection (streptococcal). The state of the liver and the spleen, the absence of any recorded neurological signs, and the desperate illness of the child, indicate that intense toxæmia or septicæmia was the important factor.

CASE 3.—A boy, aged 2 years and 7 months, was admitted on Oct. 26th, 1909, with megacolon. On the 29th Sir Arbuthnot Lane removed one foot of the sigmoid colon, and the child did well until Nov. 3rd, when the pulse became quick in the afternoon, and in the evening the patient suddenly collapsed and became cyanosed. The lower part of the wound was opened, turbid serum escaped, from which streptococci were cultured. He became weaker and died on Nov. 5th. His temperature was never raised above 101°.

Post mortem the operation wound appeared healthy. The superior longitudinal sinus and its tributary veins were thrombosed, but the other sinuses were not affected. The brain substance around the affected vessels was soft and deeply congested. The middle ears were dry. There was consolidation of the posterior portions of the lower lobes of both lungs. There was no free fluid in the abdomen, the bowel anastomosis was covered with lymph and appeared healthy. The large intestine was enormously dilated, the small normal. There were fatty changes in the liver, and the spleen was enlarged and friable.

CASES WITHOUT SEPTICÆMIA

Of the next four cases, which were non-septicæmic, two followed herniotomy (as also did the isolated case of fatal pulmonary embolism, which is not described here). It is difficult to believe that this is merely accidental; it is indeed what might be expected. The great rarity of classical thrombophlebitis following operation in children must be partly due to the fact that the operations performed on them differ from those performed on adults. It most frequently occurs after myomectomy, hysterectomy for uterine cancer (Chauvin[6]), and prostatectomy (Wilson[7]). The child is, at present, immune from surgical assault on uterus and prostate. But Chauvin's figures show that there is one other operation after which venous complications are at all common—this is herniotomy—an operation often performed in youth.

CASE 4.—A boy, aged 4 years, was admitted to hospital on Feb. 9th, 1911, under Mr. Corner, for radical cure of bilateral inguinal hernia, which was performed on the 10th. Next day the child "became more or less mad"; he shouted frequently, his eyes were fixed and staring. On the day after that he was convulsed, especially on the right side. He had another fit, this time bilateral, on Feb. 13th; his temperature rose to 107° F., and he died early on the morning of the 14th.

At autopsy a small firm thrombus was found towards the anterior end of the superior longitudinal sinus; there was a small extravasation of blood over the front of the left parietal lobe; many of the capillaries in the Rolandic areas were thrombosed. There was a little muco-pus in both middle ears. All lobes of the lungs contained patches of consolidation. The peritoneum in the right internal inguinal opening showed some congestion; the wound was healthy.

CASE 5.—A girl, aged 3 years and 3 months, was admitted to hospital on May 18th, 1934, under Mr. Higgins, for cure of a left inguinal hernia. She was almost blind, having congenital dislocation of both lenses. On May 28th radical cure was performed. On the following day she had sudden dyspnœa and cyanosis, with a weak pulse. Three days after operation she developed a left hemiplegia, with a left facial paralysis; the left plantar reflex was extensor. The cerebro-spinal fluid was normal, the blood-urea 26 mg. per 100 c.cm. On the 9th day her condition was still poor; she was transferred to a medical ward under Dr. Cockayne.

At this time she resented examination; her pupils reacted inconstantly to light but were equal; iridodonesis was present in both eyes. The discs were not seen owing to the abnormal position of the lenses. Both abdominal reflexes were absent, both knee- and both ankle-jerks present, the left plantar reflex extensor, the right flexor. There was difficulty in looking to the right with both eyes, slight weakness of the muscles supplied by the 5th and 7th cranial nerves on the left side, and complete paralysis of the left arm and leg. The operation wound was healthy.

On the 18th day there was some recovery of power, and the girl could speak a little ("Mummy make it better," &c.). But on the following morning she could not be waked. She was in fairly deep coma, but opening the mouth was strongly resisted; flexion of the left knee occurred spontaneously during examination. The pupils were fixed, the right being dilated, the left contracted; there was a divergent squint; face normal, eyes shut; left arm and leg as before; right arm and leg paralysed and limp. Respiration was slow and regular; pulse-rate 140. Both corneal reflexes were present, the left being more active than the right. Abdominal reflexes could not be obtained, both plantars were extensor, knee- and ankle-jerks were absent. The cerebro-spinal fluid was normal.

In the evening the pulse-rate was 60, the patient vomited, and convulsions limited to the left arm and leg occurred. There was a similar attack the next day; early in the morning of the 21st day after operation she died.

At post-mortem examination a dark red consolidated area was seen at the base of the lower lobe of the left lung; on section firm clot projected from smaller and larger vessels, and the consolidation was seen to extend 3–4 cm. into the lung. On microscopical examination all the larger vessels

were seen to contain adherent thrombi. There was no appearance of infection. Firm clot was also present in the basilar artery and the circle of Willis, in the left internal jugular vein, and the lateral sinus. There was very extensive softening of the whole of the right cerebral hemisphere, the thalamus and base being more affected than the parietal and occipital cortex; there were numerous pin-point hæmorrhages throughout. An old subarachnoid hæmorrhage involved the right temporoparietal region. The left hemisphere showed no necrosis or hæmorrhage. The hernia wound was clean; the inguinal vessels contained no thrombus (3 hours after death). The liver was engorged, with paler areas of fatty change, the other organs normal.

This child had sufficiently clear-cut signs to permit a tolerably accurate diagnosis (during life) of pulmonary embolism, followed two days later by embolism or thrombosis on the right side of the brain, and two weeks later by similar affection of the left side. The absence of convulsions until two days before death is interesting but not surprising, for the superior longitudinal sinus was not involved.

CASE 6.—A boy, aged 9 weeks, was admitted to hospital in a very wasted condition on August 26th, 1908, under Dr. Colman, with symptoms of pyloric stenosis for the previous six weeks. On August 28th Mr. Waugh incised the stomach and dilated the pyloric canal with Hegar's dilators. A little diarrhœa and vomiting followed the operation, but had ceased by Sept. 3rd. On Sept. 11th marked head retraction was noticed; blood-stained, sterile, cerebro-spinal fluid was withdrawn by lumbar puncture. Death occurred next day.

Post mortem the superior longitudinal sinus was found to contain firm, slightly adherent clot; the contributory veins were thrombosed. On the surface of the brain was effused blood, on the left side the corpus striatum, and the internal capsule were softened and contained small areas of hæmorrhage. There was muco-pus in both ears; the tympanic membranes were normal. The pylorus was much hypertrophied, the incision into the stomach had healed, there was a little plastic peritonitis, the adhesions being easily broken down, the other organs normal.

This case has been previously mentioned by Sheldon.[8] He considers it as one of the marantic class, but it is difficult to understand why thrombosis should have occurred about a week (probably) after a successful operation for the relief of the condition.

CASE 7.—A. S., aged 1 month, was admitted to hospital under Sir Arbuthnot Lane, on April 15th, 1909. He was a well-nourished boy with a double hare-lip and cleft palate. An operation was performed on the 16th, but by the 22nd the flap had almost completely broken down. On the 25th he was very ill; on May 3rd he died.

The post-mortem examination revealed a small cerebral hæmorrhage at the posterior part of the upper frontal convolution on the right side; the superficial veins in the immediate vicinity showed thrombosis. There was pus in the right middle ear. There was clear fluid in the serous cavities, œdema of both lungs and consolidation in the upper part of the right lower lobe, the liver was firm, the spleen not enlarged, the other organs normal.

Thrombosis in this case was very limited, and its position does not suggest spread from the infected wound. There was no evidence of septicæmia, as there was in the other palate cases, but it is not immediately obvious what killed this child.

It is difficult to know why these non-septic thromboses occur. In Case 5 intracranial clotting was probably due to embolism. No cause appears in cases 4, 6, and 7. In Case 4 death took place soon after the operation, and a falling blood pressure with surgical shock may have caused complete stasis in the rigid sinuses, which cannot contract to compensate for a small flow of blood. But something more than stasis is needed to produce intra-vitam clotting.

Intravenous therapy has been suggested as a cause, but there is no record of anything being given to any of the uninfected cases by the intravenous route. Trendelenburg's position has also been accused, but it is unlikely to have been used in these cases.

AN UNCLASSIFIED CASE

CASE 8.—A girl, aged 3 years and 8 months, was admitted to hospital on Dec. 4th, 1934, under Dr. Pearson. Two weeks previously the first and second left *lower* molar teeth had been extracted, under ethyl chloride and ether anæsthesia. Since then she had had a cold in the head. Four days before admission she had a frontal headache, without pyrexia.

On admission she had a temperature of 102°, and was delirious. There was œdema of both eyelids, more marked on the left, slight œdema of the forehead, and blueness of the middle of the forehead, the lower eyelids, the nose and the philtrum. The median frontal vein was firm and thickened. There was bilateral proptosis. The Vth left cranial nerve was paralysed, the right nerve was less affected. Kernig's sign was positive, and there was some neck rigidity, but no other neurological abnormality, except haziness of the nasal side of the left optic disc. The tongue was dirty and dry, the sockets of the first and second left lower molars contained yellow exudate. A few teeth were carious, the tonsils were not enlarged, but there was a post-nasal discharge and blood and pus were seen in the left nostril. There was no tenderness over the frontal and maxillary air sinuses, and no definite abnormality was seen in an antero-posterior radiogram of the skull. On Dec. 5th there were 25,000 white cells per c.mm. of blood; 92 per cent. were polymorphonuclear. The cerebro-spinal fluid was turbid and blood-stained, and contained albumin 0·4 per cent., chlorides 0·68 per cent., no sugar, and 560 cells per c.mm., of which 94 per cent. were polymorphonuclear; no tubercle bacilli were seen, and the fluid was sterile on culture. Blood culture gave a growth of *Staphylococcus aureus* in two days. The temperature continued to vary between 101° and 104°, and the child died on Dec. 15th.

Post mortem the thrombosed middle and left frontal veins were prominent, and small thrombosed veins were visible over the bridge of the nose and external to the left eye. There was bilateral proptosis, and there were many small abscesses in the left eyelid.

The nose was examined from above, no septic focus was seen in it, or in the mastoids, the middle ears, or the jaws. The body of the sphenoid bone was largely eroded, and contained a drachm of thick pus. Both cavernous and both intercavernous sinuses were distended by septic thrombus breaking down into greenish-white pus. Pus extended into the left orbit, and the ophthalmic veins on both sides were thrombosed. The superior longitudinal sinus contained post mortem clot; the other venous sinuses, and the internal jugular vein, the vein of Galen, and the superficial vessels of the cortex contained fluid blood. The base of the brain was covered with thick adherent pus, yellow lymph, and friable blood clot; blood also covered the spinal cord as low as the sixth cervical vertebra.

The lungs contained very many small abscesses, containing thick pus and altered blood; there were many pyæmic abscesses also in the kidneys. The other organs presented no striking abnormalities, except that there was advanced fatty degeneration of the liver. *Staphylococcus aureus* was grown from the pus at the base of the brain, in the cavernous sinuses, and in the orbit.

This case does not fit into the categories mentioned. It was not an uninfected case, nor was it due to direct spread from the site of operation, as in mastoid cases. It was septicæmic, but the history suggests that there was a local lesion before the septicæmia. There may have been a sphenoidal sinusitis, followed by sphenoidal osteomyelitis, cavernous sinus thrombosis, and subsequent pyæmia. If so, it is possible that the anæsthetic was the match that fired the train.

DIAGNOSIS

Signs and symptoms vary as the position of the lesion varies, and are modified by the condition of the patient; they may be masked by severe infection. The commonest site is the superior longitudinal sinus,

usually the middle portion (Byers and Hass[3]), so that venous congestion of the cerebral cortex, especially the Rolandic areas, occurs early, and is followed by thrombosis. Consequently motor symptoms are frequent, in post-operative and other cases. Later, softening of the brain occurs and hæmorrhage takes place, giving further symptoms. Drowsiness and vomiting are common, though in Case 4 there was extreme excitement.

Untoward signs, in these cases were first noticed at intervals varying from a few hours to two weeks after the operation, and there was no significant difference in this respect between infected and uninfected cases.

SUMMARY

Post-operative intracranial thrombosis occurs rarely in childhood, except as a local complication of mastoiditis. It occurs in septicæmia (usually streptococcal); possibly in toxæmia; by local spread from an infected air sinus; and in uninfected cases. Six cases from post-mortem records, and two personally observed, are described. Four of the operations were abdominal (2 herniotomies) and 4 were buccal (3 cleft palates). Three of the latter and only one of the former group were infected. The superior longitudinal sinus was the most frequently involved (5 cases).

My thanks are due to the surgeons and physicians named for permission to describe their cases, to the medical staff of the Hospital for Sick Children for permission to use the post-mortem records, and to Dr. R. W. B. Ellis for advice and help.

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FAT NECROSIS ASSOCIATED WITH PERFORATED DUODENAL ULCER

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Fat necrosis of the omentum and mesentery is so constantly associated with acute pancreatitis that many surgeons accept its discovery at operation as conclusive evidence of acute inflammation of the pancreas. The condition has been found, however, in connexion with acute perforation of a duodenal ulcer,[1] and also in cases of perforation and rupture of the small intestine,[2] as well as in a case where the cause was not discovered[3] (though the possibility of a leaking duodenal ulcer in this particular case was not excluded). In all of these cases the pancreas was found to be unaffected. While it is clear, then, that acute pancreatitis is responsible for most cases of fat necrosis, it is evident that there are many other conditions which produce it, and hasty inference must not be drawn from its presence. Furthermore, it is to be noted that in acute pancreatitis the peritoneal exudate is blood-stained, a factor which is helpful in arriving at the diagnosis before actual examination of the pancreas. To quote Lord Moynihan, "Whatever doubts may have been previously felt as to the nature of the disease, they are at once resolved when these two conditions, fat necrosis and sanguineous exudate, are found."[4]

The association of fat necrosis with perforation of a duodenal ulcer is rare, if we are to judge by published records; but I believe it is not unusual to find at autopsy small areas of fat necrosis near the site of perforated duodenal and perforated gastrojejunal ulcers.[5] Why this should be so is not clear, particularly as the condition is so seldom found at operation. A short review of the factors involved in producing fat necrosis may help to suggest an explanation.

Fat necrosis of omentum and mesentery is due to the action of two ferments, trypsin and steapsin, contained in the pancreatic juice. Steapsin splits the fat into fatty acids and glycerin, and the fatty acids combine with calcium salts to form calcium soap. It appears that this action can only take place after the death of the cell, caused by trypsin. Again, the extent of the conversion is governed by the activity of the pancreatic secretion, which is variable and dependent upon its content of trypsinogen and steapsin, and on the conversion of trypsinogen into trypsin. It is possible, then, for pancreatic secretion to escape into the abdominal cavity and cause little or no fat necrosis, though such a result is unlikely. In typical cases of acute pancreatitis, the condition shows itself as small white patches of fat necrosis dotted here and there over the omentum and mesentery, the patches being roughly round in shape and not more than a few mm. in diameter, unless by chance some of them coalesce to a larger size. In the early stages they are confined to the tissues of the lesser sac, but later they may be found widespread throughout the abdomen and in the subperitoneal fat. They have been found post mortem in the subpleural, subpericardial, and subcutaneous tissues, and even in the medulla of bones—such remote complications being explained by absorption of pancreatic ferments into the lymphatic and general circulation, as well as by actual embolism of pancreatic cells.[6]

Under normal circumstances, trypsinogen is converted into trypsin by the action of the enterokinase of the small intestine, and it may be asked how this conversion is brought about in cases of acute pancreatitis. Mellanby and Woolley (quoted by Walton)[6] have shown that *Bacillus coli* and other organisms are as capable of bringing about conversion of trypsinogen into trypsin as enterokinase. In fact one of the explanations of the acute fulminating condition which develops in the pancreas is that trypsinogen is converted into trypsin by micro-organisms which have gained a footing in the pancreas, and that trypsin then proceeds to digest the pancreatic cells themselves. In any event the eruption in the pancreas is so great that the escape of pancreatic secretion from the grossly damaged pancreas is inevitable and no doubt profuse, and, as we have seen, if allowed time to develop will have widespread effects.

In cases of perforation of duodenum and intestine the escape of pancreatic secretion is not so assured. Here much will depend upon the amount of free or unutilised pancreatic secretion in the bowel at the time of perforation, and also on the proximity of such secretion to the site of perforation; for we may take it that following the shock of perforation, the normal function of the pancreas and its ducts, as well as that of the duodenum and intestine, will be in abeyance. When one considers that fat necrosis

is found occasionally, post mortem, in cases of perforated duodenal and gastrojejunal ulcers, and that it is seldom found at operation, it seems likely that operation is undertaken before the condition of fat necrosis has had time to develop. In Richter's case of fat necrosis following the perforation of a duodenal ulcer, 28 hours had elapsed before the time of operation, and in the case recorded here the interval was 36 hours.

The patient, a barman aged 46, was admitted to the North Middlesex Hospital at 10 P.M. on July 21st, 1925. He was very ill and unable to give much history. The main facts were that about 11 A.M. on the previous day he was seized with acute abdominal pain and vomited. His doctor ordered medicine which was taken with relief. After one and a half days in bed, with only sips of water to relieve thirst, another doctor ordered his removal to hospital.

On admission the temperature was 101·4° F. and the pulse-rate 126. The abdomen was distended, tender and rigid; there was no movement on respiration. Laparotomy was performed through a right mid-abdominal paramedian incision. The peritoneum was found to be œdematous and the abdominal cavity flooded with seropurulent fluid. Fat necrosis of the omentum was at once apparent and the incision extended upwards. The pancreas proved to be normal to palpation but a perforation was discovered on the upper anterior surface of the first stage of the duodenum. This was closed and the abdomen drained.

The patient was admitted to the London Hospital three months later for investigation. Mr. James Sherren opened the abdomen through the scar of the previous operation and found the omentum adherent to the upper part of the abdominal wound. The adhesions were cleared. The omentum was otherwise normal in appearance and there was no sign of previous fat necroses. The site of the perforation of the duodenal ulcer was identified, and a small piece of unabsorbed catgut was found protruding from the surface of the duodenum. The pancreas, exposed through gastrocolic omentum, was normal to inspection and palpation. Posterior gastrojejunostomy was performed, and the patient was discharged from hospital towards the end of the third week. For ten years he has enjoyed excellent health; he now runs a grocer's shop and says he works 12 hours a day.

In this case the patches of fat necrosis were much larger than those usually seen in acute pancreatitis—some of them being more than an inch in diameter—and they were extensively distributed over the surface of a large and well-nourished omentum. Three months later, however, they had disappeared without trace. A portion of the omentum excised at the time of the first operation was examined by Dr. T. H. C. Benians, who described the specimen as one of "typical fat necrosis of the omentum."

I am grateful to Mr. Sherren for permission to publish the details of the second operation.

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A GIFT FOR RADIUM.—King Edward's Hospital Fund for London has received from Mr. Roger Parr a donation of £10,000 as a Jubilee gift to its radium fund. In 1929 Mr. Parr gave £10,000 towards the purchase of the stock of radium which the Fund places out on loan to hospitals. His present gift is to facilitate schemes which are at present being worked out by the King's Fund for increasing the usefulness of this radium.

A FATAL CASE OF ELECTROCUTION

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JELLINEK[1] in 1912 described the factors which play an important part in electrical accidents and drew attention to the influence of resistance, voltage, amperage, earth contact, and the mental condition of the victim at the moment of the shock. The traumatic results of electrocution are more or less governed by the path of the current, whether direct through the body or indirect over its surface. The effect of currents of high voltage on the nervous system has lately been described by Critchley[2] and Pritchard.[3]

A case is recorded below in which a healthy male succumbed to an alternating current of 590 volts despite prompt attempts at resuscitation. These cases of electrocution are as yet uncommon in this country.

A young engineer in an electricity works was found lying unconscious on the ground some three feet from the guarded switchboard controlling a rotary converter. His duties included the starting and running up of this motor, and on the day of the accident he was seen walking down the room to perform this act. Shortly afterwards a fellow mechanic discovered him lying on the ground and artificial respiration was instituted, within about ten minutes, on the assumption that the victim had received an electric shock. Unfortunately the man never recovered consciousness and he was removed to hospital dead. Artificial respiration had continued for about 55 minutes.

POST-MORTEM FINDINGS

Autopsy was performed six hours after death, and a further examination twenty-four hours after death. The body was that of a young well-built and well-nourished male; height 5 ft. 10 in., and weight 12 st. approximately. Post-mortem lividity was well marked on the lower (dorsal) aspect; the features were congested and the superficial temperature of the body was still perceptible to the hand, although a clinical thermometer failed to register it.

Eyes.—The pupils were dilated, and running horizontally across the cornea and sclera of both eyes was a linear scar. The sclerotic of the right eye showed two hæmorrhages, medial and lateral, and the left sclerotic, one on the lateral aspect, in a line with the scars. The index-finger and thumb of each hand showed recent burns and these wounds demonstrated the points of contact, and that the victim must have grasped the live points firmly between the fingers and thumbs.

Right hand.—A small wound on the middle phalanx of the index-finger, and on the radial side of that finger there was an elongated lacerated wound which ran obliquely downwards from back to front and showed signs of blistering and charring. On the dorsum of the same finger there was a small circular char, similar in appearance to the burn caused by a lighted match head which has stuck to the skin after striking. On the thumb of the right hand a small linear scar ran longitudinally from the tip.

Left hand.—On the radio palmar aspect of the distal phalanx of the thumb there was a small triangular burn with a depressed centre. The index-finger showed an elongated wound similar to that of the right hand with the same characteristics (Fig. 1).

Examination of the *hands and forearms* showed a definite pale area of the skin extending from the thumbs and index-fingers and tapering down to a point towards the elbows. Externally there was no other evidence of injury.

Brain.—The dura mater showed numerous petechial hæmorrhages throughout the surface and towards the base of the skull there was a definite congestion of the blood-vessels and extravasation of blood. On the brain surface the sulci were marked by petechial hæmorrhages except one area at the superior extremity of the right fissure of Rolando, which by contrast was very pale.

FIG. 1.—Sketch of left hand showing burns of thumb and forefinger.

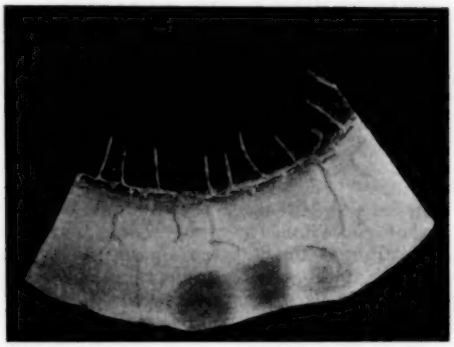

FIG. 2.—Section of loop of small bowel showing prominent lacteals and patch.

Further examination of this area revealed that the pia mater and the arachnoid had been stripped off the underlying brain tissue. At the anterior extremity of the second frontal convolution, right lobe, there was a small superficial hæmorrhage about the size of a sixpenny piece. No laceration nor evidence of disease of the brain tissue was found.

In the region of the *neck* there was marked congestion of the muscles and tissues. Tongue, trachea, and œsophagus were healthy but congested.

Thorax.—There were no adhesions between the pleural surfaces. The lungs were ballooned and mottled, but the surface was light in colour. Petechial hæmorrhages were seen on the costal and interlobular aspects. Along the lateral borders of both lungs were several subpleural hæmatomata. The blood in these hæmatomata was still fluid some twenty-four hours after death. On section the lungs showed congestion but no evidence of disease. The pericardium was normal and healthy, with a small amount of clear fluid present in the sac. Several petechial hæmorrhages were seen. The myocardium was also healthy; both ventricles contained a very small amount of dark fluid blood. All valves were patent and normal. The endocardium showed one or two minute petechial hæmorrhages; otherwise healthy.

Abdomen.—The stomach was small, empty, and normal. The liver, spleen, and kidneys were congested but healthy. On section of the spleen the blood ran out freely. The coils of the small intestine showed two features of interest apart from the petechial hæmorrhages, viz.: (1) The pearly-white appearance of the lacteals, which stood out on the surface of the bowel and mesentery. As they emerged from the muscular layer, these lacteals ran longitudinally to anastomose in pairs forming a main trunk which turned upward into the mesentery for a distance of one inch before disappearing in the deeper layers. (2) At the most dependent portion of each loop of the small bowel there was a definite patch of congestion about one and a half inches long on the surface opposite the mesenteric attachment. Further examination of these patches showed an apparent thinning of the muscular layer and general loss of tone, compared with the rest of the bowel (Fig. 2).

Blood.—The usual condition of the blood after electrocution was conspicuous in this case; the fluidity was general and remained so for at least twenty-four hours after the autopsy. A blood film showed no abnormality.

Microscopic examination of the skin of these burnt areas showed a gap in the superficial layer and vacuolation in the stratum corneum which was separated from the deeper layers (Fig. 3). In the centre of the burn, the structure of the stratum Malpighii was quite effaced, and the subjacent cellular tissue had its cell nuclei distorted into threads (Fig. 4). The blanching of the skin between the index-fingers and thumbs demonstrated the superficial or indirect path of the current.

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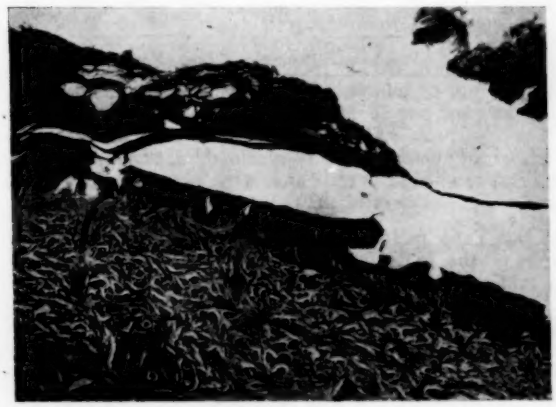

FIG. 3.—Low power. Section of skin through the burnt area. (× 45.)

FIG. 4.—High power. Section of skin through the burnt area. (× 150.)

THE INCIDENCE OF PROCTITIS IN GONORRHŒA OF FEMALES

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Gonococcal infection of the rectum as a complication of gonorrhœa in women does not appear to have attracted much attention in this country, and probably if the medical officers of our venereal disease treatment centres were asked to state their opinion as to its incidence, most of them would declare it to be negligible. The reason is that in the great majority of cases the condition causes practically no clinical sign or symptom. In this respect we may say at once that our experience coincides exactly with that of C. L. Martin,[1] whose paper appeared whilst we were collating the results of the investigation reported here.

Our attention was drawn to the subject of gonococcal proctitis a few years ago by Dr. Vuletic, of Prague. During a visit to the V.D. Department, St. Thomas's Hospital, Dr. Vuletic said that in continental clinics it had been found to be a very common complication of gonorrhœa in females. Our scepticism about its frequency in this country was met by Dr. Vuletic's suggestion that laboratory tests of rectal secretion might lead to a different opinion, and a small series of specimens taken then showed us that in this matter we had been in a fool's paradise. Some months later we commenced a systematic investigation to ascertain the incidence of proctitis in our female patients with gonorrhœa, and the results are reported below.

The cases comprising the present series are a random sample, in that one of us (P. A. C.) whenever an opportunity occurred took specimens from the rectum of any female under examination on first attendance, or under treatment for gonorrhœa, or undergoing tests of cure following treatment for gonorrhœa.

METHOD OF INVESTIGATION

The procedure was as follows:—

Collection of Material.—After external cleansing and insertion of a plug into the vagina to prevent any possibility of contamination with vulvovaginal secretion, a well-made platinum loop was passed through the anal canal in such a way as to rub along the anterior wall of the rectum, from which the specimen was collected. In the majority of cases (37 out of 69 that showed the presence of gonococci) the loop collected no visible secretion; in 8 it collected obvious pus, and in 22 only a mucoid secretion. On withdrawal a smear of the secretion was made on a microscope slide which was stained by Jensen's modification of Gram's method. Another specimen was immediately spread on the culture medium which in our experience has been found most suitable for isolating the gonococcus in these circumstances.

Culture Medium.—In a search for the most suitable medium one of us (K. E. H.) had tried the following: (1) Hydrocele broth, pH 7·6, containing various quantities of telluric acid and/or brilliant green, as restrainers of growth of *B. coli*. (2) Broth containing various quantities of a highly potent anti-*B. coli* serum. (3) Slopes of hydrocele agar, pH 7·6 in tubes of 1 inch diameter and providing a surface area of about 3½ square inches. (4) The same medium in Petri dishes providing a surface area of about 9½ square inches. Of all these the two first were useless and the last proved by far the most satisfactory; it was therefore employed in all the cases composing the present series.

In inoculating the plated medium the charged loop was made to draw series of closely set parallel lines in one direction and then a similar series at right angles to the first. Incubation was carried out at 37° C. for 48 hours, the plates being inverted to prevent water of condensation falling on the medium.

Recognition of Gonococci.—In preliminary detection of colonies of gonococci use was made of the oxidase reaction of J. W. McLeod and J. Gordon.[2] About 1 c.cm. of a 1 per cent. aqueous solution of dimethyl paraphenylene diamine hydrochloride was allowed to flow over the surface of the medium, the plate being slightly sloped to get rid of surplus reagent. After about five minutes smears were made from any pink colonies and stained by Jensen's modification of Gram's method. A diagnosis of gonococci was made on the strength of the organism being Gram-negative and having the morphological characteristics of gonococci. In positive cases the number of colonies varied from one (in several instances) to uncountable and giving the appearance of a pure culture (in two instances).

With regard to the question whether or not it is an advantage to employ both slide and culture the following were the results of 240 parallel tests. In 42 (17·5 per cent.) both smear and culture were positive; in 28 (11·7 per cent.) only the culture was positive; and in 11 (4·5 per cent.) only the smear. The employment of both methods therefore resulted in gonococci being discovered by one or both in 81 (33·7 per cent.) of the cases as compared with 29·2 per cent. if only cultures had been used and 22 per cent. if only slides.

RESULTS

The number of cases investigated in this way was 160. Their condition on first attendance at the clinic had been as follows:—

Category.	Description.	
(G.1)	With gonorrhœa of less than two weeks' duration ..	46
(G.2)	,, ,, ,, 2 to 4 ,, ,, ..	19
(G.3)	,, ,, ,, 4 to 52 ,, ,, ..	59
(G.4)	,, ,, ,, more than one year's ,, ..	4
(G.5)	With a history of gonorrhœa but no present bacteriological evidence of it	11
(N.V.)*	With no evidence of venereal disease	21

* This category for the purpose of this paper includes a few syphilis cases.

The cases were examined at various times after first attendance as shown in the Table. The figures in this Table relate to the results of the first examination of the rectal secretions and therefore represent a minimal incidence in the material examined.

Table showing the number of months after first attendance when the rectal examination was carried out, and the results

Category on first attendance.	No. of cases.	Examination of rectal secretion carried out							
		On first attendance		After first attendance during					
				1st month.		2nd to 5th month.		6th month or later.	
		Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
G.1 ..	46	2	2	4	2	14	13	2	7
G.2 ..	19	1	1	6	3	2	1	1	1
G.3 ..	59	7	9	16	2	11	11	1	2
G.4 ..	4	1	1	0	0	0	0	1	1

The Table shows that in 128 cases with evidence in slide and/or culture of gonorrhœa 69 were found by the same methods of examination to be suffering from gonorrhœal proctitis. In only 2 of these cases did the patient complain of any local discomfort,

[1] Jour. Amer. Med. Assoc., 1935, civ., 192.

[2] Jour. Path. and Bact., 1928, xxxi., 185.

and in only 8 was there any sign of purulent discharge. In 8 of the positive cases the patients were under observation and tests of cure after treatment for gonorrhœa of the genito-urinary passages, and neither at the time of the rectal examination nor later showed gonococci in the urethral or cervical secretions. These patients would therefore have been discharged as cured but for the rectal examination.

In 7 cases gonococci were never at any time found elsewhere than in the rectum. Salient points in these cases were as follows:—

1. Pregnant; sent for examination on account of a Bartholin abscess, and to be tested for fitness for admission to a maternity home; gonococcal complement-fixation reaction ++ (1/1).
2. Sent for examination because husband suffering from gonorrhœal rheumatism; complement-fixation reaction ++ (1/5).
3. Husband suffering from gonorrhœa; gonococcal complement-fixation reaction negative.
4. Sent by consort who had gonorrhœa of seven days' duration; gonococcal complement-fixation reaction ++ (1/5).
5. Attended with secondary syphilis; gonococcal complement-fixation reaction ++ (1/1).
6. History of treatment for gonorrhœa in another clinic; complement-fixation reaction ±.
7. Contact under treatment for acute attack; complement-fixation reaction negative.

In 5 of these cases the positive complement fixation would probably have prevented discharge of the cases, but in the remaining 2 only the rectal examination discovered the infection.

TREATMENT

In 10 cases nothing was done locally, and examination repeated from one to seven months afterwards gave a negative result in only 1. Most of the cases were treated at first by irrigation with potassium permanganate, 1/4000 to 1/8000, but this proved very disappointing, the majority of the patients being found to be still infected after from one to five months of such treatment. On the other hand, irrigation with acriflavine 1/5000 seemed as a rule to be effective usually within about a month; though further observation will be needed to determine in what proportion of these cases the infection has really been eradicated.

SUMMARY

(1) Of 160 cases suffering from gonorrhœa of the genito-urinary passages, or under tests of cure, or under suspicion, gonococci were found in the rectal secretion of 69. (2) In the great majority obvious signs and symptoms were absent. (3) By cultural methods an important proportion of cases are discovered which would be overlooked if tested only by smear on microscopic slide. (4) In 8 cases under test of cure gonococci were not found in the secretions of urethra and cervix either at the time of the rectal examination or later. (5) In 7 other cases examined under suspicion for one reason or other no gonococci were ever found in secretions from the genito-urinary passages. (6) Gonorrhœal proctitis does not appear to be self-limited; treatment by irrigation with potassium permanganate proved disappointing, but acriflavine 1/5000 seemed satisfactory. (7) Microscopical and cultural examination of the rectal secretion is clearly required for every female in whom there is any question of a gonococcal infection.

We wish to thank Colonel L. W. Harrison, director of the department, for permission to publish this paper.

THE ERYTHROCYTE SEDIMENTATION-RATE

A COMPARISON OF THE METHODS COMMONLY EMPLOYED FOR ITS DETERMINATION

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THE estimation of the sedimentation-rate of the erythrocytes is firmly established as a valuable index of progress in certain diseases—notably pulmonary tuberculosis. Three methods of estimation are in general use at the present time: the Westergren method, the modified method of Zeckwer and Goodell, and the "micro-method." Reports on the sedimentation-rate are apt to perplex the practitioner, since often they do not state the method employed, the duration of the test, and whether the red cells or the plasma are measured. For example, the report may read "the red cells drop 26 mm.," or "sedimentation-rate 8·7," or "blood sedimentation-rate 13 per cent." The first report (26 mm.) indicates that the test has been performed by the Westergren method, and that the one-hour reading is plasma 26 mm. and red cells 174 mm. The figure 8·7 means the test has been carried out by the modified Zeckwer and Goodell method, and that the one-hour reading is red cells 8·7 parts, plasma 1·3 parts. The figure 13 per cent. is reached by a micro-method one-hour or half-hour reading, the plasma occupying 13 parts and the red cells 87 parts.

It is our purpose to describe briefly the three methods to show the relationship between them, and to indicate some advantages or disadvantages of each. A comparison of the three methods performed at the same time and under the same physical conditions was carried out on 10 patients at the Brompton Hospital, and the results are tabulated below.

The Westergren method,[1] a modification of the Fahraëus technique,[2] is performed in a glass tube 30 cm. long and 2·5 mm. in bore, graduated from below upwards from 0 to 200 mm. Blood is withdrawn from a vein, and mixed in a small test-tube with sodium citrate (3·8 per cent.) in the proportion of 4 parts of blood to 1 part of citrate solution. The citrated blood is then sucked up into the tube to the 200 mm. mark; the lower end is closed by inserting the tube into a rubber stopper, and the tube set perpendicularly in a stand. The reading is taken at the end of one and two hours, the column of clear fluid above the sedimented corpuscles being measured. A normal reading was considered by Westergren to be 3 mm. of clear fluid at the end of one hour. For purposes of comparison the reading can be given as a percentage by dividing it by 2, the result being expressed as mm. of supernatant fluid per cent.

The method used by us at the Brompton Hospital is a modification of that described by Zeckwer and Goodell.[3] The sedimentation tube has a bore of 0·75 cm., and it is marked in ten divisions each of 1 cm. Sodium citrate (3·8 per cent.) is placed in the tube to the 2 mark. About 5 c.cm. of blood is drawn from a vein, and ejected from the syringe into the tube containing the sodium citrate to the 10 mark. In this method the height of the column of sedimented corpuscles at the end of one and two

hours is read in centimetres, and the tenths of a centimetre by placing a millimetre scale against the tube. The column of supernatant fluid is not recorded. A normal reading is 9·7 cm. of corpuscles in one hour. The reading can be made comparable with those of other methods by subtracting it from 10, and multiplying the result by 10, thus giving so many mm. of supernatant fluid per cent.

A third method is the "micro-method." The tube used is a capillary pipette of thick glass, about 6 in. long, whose bore is 1·13 mm., and graduated from above downwards in mm. from 1 to 100. The patient's finger is pricked, after warming it in hot water, and eight drops of blood are sucked into a special teated pipette; the blood is then mixed in a small test-tube with two drops of 3·8 per cent. sodium citrate solution. The citrated blood is then sucked into the capillary pipette to the mark 1, and the tube set in a water-bath at a temperature of 37° C. The reading of supernatant fluid is taken at the end of half an hour by some observers and at one hour by others. The final reading is expressed as so many mm. of supernatant fluid per cent. Normal readings are between 0·5 and 4·0 per cent. for men, and between 1 and 8 per cent. for women after half an hour.

Commenting on the three methods, we think that the Westergren method has the advantage that it or some modification of it is the most extensively used of all three, especially on the continent, and therefore the significance of its readings are more likely to be widely known. It is possibly more accurate than the modified Zeckwer method, since finer readings can be taken as a smaller column of blood

Table giving Comparison of Sedimentation-rates by Three Methods (after one hour)

—	Westergren method. 200 mm. tube.	Modified Zeckwer and Goodell method. 10 cm. tube.		Micro-method. 100 mm. tube.
	Plasma mm. (and mm. per cent.).	Corpuscles cm.	Plasma mm. per cent.	Plasma mm. per cent.
1	50 (25)	7·0	30	24
2	36 (18)	7·4	26	18
3	12 (6)	9·2	8	9
4	10 (5)	8·9	11	14
5	64 (32)	7·0	30	11
6	5 (2·5)	9·4	6	10
7	4 (2)	9·6	4	3
8	10 (5)	9·5	5	8
9	4 (2)	9·8	2	5
10	6 (3)	9·4	6	2

is employed, but this does not seem to us an overwhelming advantage, the test being essentially a somewhat rough estimate of activity in pulmonary tuberculosis, and the value lying largely in the serial readings obtained in individual cases. The modified method of Zeckwer and Goodell has the great advantage of simplicity and it is sufficiently accurate for practical purposes. With regard to the "micro-method," the advantage would seem to be that it can be used when vein puncture is impossible. But the test is, in our opinion, not so easy to carry out, for it is sometimes difficult to obtain the requisite amount of blood by pricking the finger, and the technique is more complicated than in the other methods.

The Table shows that there is no constant discrepancy between the readings of the methods. The value of the sedimentation test lies in the comparison of readings, by the same method, from week to week, and whichever method is used, this is found to be a fairly good criterion of progress or retrogression. It would undoubtedly be an advantage if one method could be used universally; the test would then have more widespread significance.

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Clinical and Laboratory Notes

A CASE OF AGRANULOCYTOSIS

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THE following case is reported to draw further attention to this condition, which is probably considerably commoner than is generally imagined.

The patient, a single woman aged 59, was admitted to the Hampstead General Hospital in December, 1934. On the day before admission she had noticed a small pimple on the lower lip just below the angle of the mouth on the left side; on admission there was a lesion about the size of a farthing in this situation, dark bluish-black in colour, and surrounded by moderate œdema and redness. The suspicion of anthrax arose and I was asked to examine it from this point of view. Material was scraped from the surface, a procedure which proved to be almost painless, and on examination revealed the presence, in pure state and considerable numbers, of a small actively motile Gram-negative bacillus.

The general condition at this time was good, though the temperature was 103·4° F. and the pulse-rate 120. There was no ulceration of the throat, but she was found to have a completely healed perforation of the palate; there was also a depressed scar over the left great trochanter. Apart from these two findings nothing of note was discovered. She stated that about nine months previously she had had a throat infection followed by an abscess in the thigh which had been treated at another hospital with complete recovery, her general health having subsequently been good.

The history obtained from this hospital was that she had been admitted with a severe membranous pharyngitis from which pneumococci had been grown and had later developed an abscess over the great trochanter, the infecting organism not being ascertained. Though gravely ill she had recovered but with a perforation of the palate and the scar we observed. The case had been regarded as obscure and no definite diagnosis was made.

That evening the local lesion was excised. Later in the evening the possibility of the case being one of agranulocytosis occurred to me and the following morning a leucocyte count revealed: white blood-cells, 1000 per c.mm., with no polymorphs or eosinophils, lymphocytes, 84 per cent.; and mononuclears, 16 per cent. The patient was now gravely ill. The excision wound showed a very remarkable appearance, with bluish-black necrotic tissue round the excision edge and outside this spreading œdema. The culture from the original lesion gave a pure growth of a motile Gram-negative bacillus producing a pink growth on ordinary agar; it subsequently proved to be a typical *B. prodigiosus*. A blood culture taken at the same time as the leucocyte count grew a pure culture of the same organism within twenty-four hours.

Pentnucleotide therapy was instituted as soon as the drug could be obtained; 20 c.cm. were given this day and again 20 c.cm. the following morning, on each occasion by the intramuscular route. A blood transfusion of 500 c.cm. plus citrate was given later on the same day as the first dose of pentnucleotide. On the following morning she was in extremis, an intravenous saline was administered, but she died about 2 P.M. The temperature was maintained between 101·5° and 104° F. during the course of the illness and the pulse-rate at 120, rising to 130 before death.

Histological examination of the tissue removed at operation showed a generalised necrobiosis of the epithelium, corium, and subjacent fat with practically no tissue reaction even at the edge of the necrotic area, what reaction there was being entirely mononuclear. The necrotic area was packed with Gram-negative bacilli.

At post-mortem examination the ordinary changes associated with septicæmia were well in evidence and the kidney and liver contained scattered collections of Gram-negative bacilli without tissue reaction round them. There were no polymorphs in the splenic pulp; the femoral marrow was chiefly fatty even in the head; the rib marrow was pink. In both femur and rib sections showed that red cell production was normal; but though some myeloblasts and myelocytes were found there were no formed polymorphs.

The points of interest in this case are: (1) the previous illness, which one may reasonably assume to have been agranulocytic angina, as the condition is known to be recurrent in some cases. If this opinion is correct a new cause of perforation of the palate is demonstrated. (2) The peculiar site of the lesion and the fact that where secondary infection was not so likely to occur as in the throat the infection was pure. The organism responsible is generally regarded non-pathogenic and of such restricted distribution that it is difficult to imagine how she came by it, particularly in pure state. This seems to dispose of any idea that any particular organism is associated with this disease and to demonstrate the importance of the "soil." The examination of the marrow supports the contention that the mechanism is a failure of maturation of the myelocyte comparable to the maturation failure in pernicious anæmia.

No history of the patient having taken amidopyrin in any form could be obtained; but the facts had to be got mainly from her relatives, her medical attendant, and her employer. When the diagnosis was made the patient was too ill to be able to fix her attention sufficiently to give a convincing answer.

THROMBOSIS OF THE ENTIRE AORTA

IN A WOMAN AGED TWENTY

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THE following case is recorded because it showed the extremely unusual feature of a thrombus extending the whole length of the aorta.

Clinical History.—When admitted to hospital, eighteen weeks before death, the patient, a woman aged 20, had been suffering from dyspnœa and pain in the chest for eighteen months. She was found to have hypertrophy of the left ventricle without any apparent valvular lesion; the systolic blood pressure was 170 mm. Hg; the urine contained a large amount of albumin, together with blood-cells and fatty casts.

A hemiplegia occurred suddenly 10 weeks after admission to hospital, and there was gradual recovery from this. Eight weeks later there developed a sudden and complete flaccid paralysis of the lower limbs. The legs were at first completely white, but later they became bluish and showed large ecchymoses. There was complete loss of sensation in the lower limbs. On the following day the patient suffered severe abdominal pain and died some hours after passing a large quantity of blood per rectum.

Post-mortem Findings.—In the aorta, about half an inch above the valve, was found a shallow pouching toward the right side. On the outer aspect of this the pericardium was adherent. From this point a white and mixed fibrin thrombus extended the whole length of the vessel. In the arch and in the descending thoracic aorta the lumen was almost filled and only a narrow irregular channel was left for the passage of blood. Below the origin of the superior mesenteric artery it was completely obliterated. The thrombus in the arch was dense white and adherent, but below this it was mixed red and white and much less adherent. The aortic wall showed extensive calcification.

The heart was slightly enlarged and showed hypertrophy and some dilatation of both ventricles. The valves were quite normal. There was a layer of antemortem thrombus in the left ventricle near its apex. This thrombus was easily stripped from the underlying mural endocardium. Infarcts were present in the spleen and kidneys. There was extensive infarction of the small intestine due to the mouth of the superior mesenteric artery being occluded by the thrombus in the aorta. A small cystic softening was found in the brain involving the left lenticular nucleus and lying almost completely across the internal capsule.

The heart and aorta.

Histological Findings. — The aorta showed widespread and severe damage. The media was very much thinned and its elastic fibres were fragmented and granular. They were interrupted by areas of round-cell infiltration having a characteristic perivascular distribution and giving an apparently typical picture of syphilitic aortitis. The intima was thickened and in its deeper parts there were extensive areas of fatty degeneration. Large plaques of calcification involved both the intima and the adjacent media. The thrombus showed organisation which was most advanced in the arch. The thrombus present in the left ventricle showed early organisation and was apparently not as old as that in the arch of the aorta. The myocardium underlying the thrombus in the heart appeared normal.

The lesion in the aorta appears to be one of syphilitic aortitis accompanied by a very severe degree of atheroma. The mode of development of the thrombus was not obvious. There was no gross aneurysm formation in which the process could have started. There was however a slight pouching of the aorta in the ascending part in which the thrombosis probably commenced.

This case is unusual not only in the extent of the thrombus but also in the fact that although occurring in a young subject the thrombosis arose as a direct result of arterial disease. Aortic thrombosis in young adults is usually a result of emboli from the heart becoming impacted at the bifurcation of the aorta. L. Desclin [1] however has described a case

[1] Frankfurt. Zeits. für Path., 1930, xl., 520.

of aortic thrombosis in a woman aged 19 in which the thrombosis was due to a primary aortitis. In his case the thrombus was limited to the ascending part of the arch and the aortitis was of coccal origin and the inflammation practically limited to the intima. In the present case there was no evidence of acute infection and nothing was found which might have contributed to the thrombosis apart from the chronic aortic lesion.

DIPHTHERIA FORMOL TOXOID AND THE MOLONEY TEST

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In 1929 Moloney and his co-workers [1] stated that "the results of tests on 50 voluntary subjects showed that the greater the sensitivity to the intradermal injection (of 1 in 10 dilution of anatoxine) the more marked is the reaction both local and general following the subcutaneous injection of anatoxine. If the diameter of the redness following the intradermal test is less than 10 mm. no marked local or general reaction followed the prophylactic dose of 0·5 c.cm. of anatoxine." In 1928 the same workers [2] recommended a dosage of toxoid depending upon the size of the intradermal test reaction as follows:—

Intradermal injection of 0·2 c.cm. of 1/10 dilution of diphtheria toxoid. (*a*) Redness up to 20 mm. (*b*) Redness over 20 mm. without œdema. (*c*) Pronounced redness + œdema.

Group (*a*), (*b*), (*c*) to have 3 injections of 0·1, 0·02, 0·01 c.cm. toxoid respectively. At intervals of 3 weeks.

It was with a view to confirming the first statement and deciding upon the advisability of varying the dosage as recommended in 1928 or of using some other prophylactic in Moloney-positive reactors that the following investigations were undertaken.

The subjects were recruits to the nursing staff at the North Western Hospital. All were Schick- and Moloney-tested on joining. The Moloney reaction was carefully read and recorded at 24, 48, and 72 hours, and it was found that in almost all cases it was at its height at 48 hours. Reactions were placed in three groups according to size: Group 1 showing an area of redness up to 10 mm. in diameter, Group 2 between 10 and 30 mm., and Group 3 above 30 mm. All Schick-positive reactors were inoculated with formol toxoid; no variation in the procedure or dosage of the prophylactic being made whether the subject was a Moloney-positive or negative reactor. Formol toxoid reactions were divided into local and general; each of these divisions being sub-divided into three groups—i.e., slight, moderate, and severe:

A slight local reaction = local redness up to 1 inch diameter.
A moderate ,, ,, = ,, ,, from 1 to 4 inches.
A severe ,, ,, = redness above 4 inches diameter + swelling.

Temperature was used as the main index of severity of general reactions. Each case was seen by me personally on each of the three days following toxoid inoculations and the temperature taken.

Temperatures between normal and 100° F. were classed as slight.
Temperatures between 100° F. and 102° F. were classed as moderate.
Temperatures above 102° F. were classed as severe.

In all 57 cases were observed, of which 23 were Moloney-positive and 34 Moloney-negative. The results obtained are shown in Tables I. and II.

Two nurses were taken off duty as a result of reactions. One of these had a slight Moloney, but a severe local reaction; the other had a severe Moloney and a severe local reaction.

TABLE I.—*Positive Moloney Reactors*
(23 cases = 40 per cent.)

Size of Moloney test.	Cases.	Reactions to formol toxoid inoculations.	
		Local.	General.
Up to 10 mm. diameter (8 cases).	1	—	—
	3	Slight.	—
	1	Moderate.	—
	2	Severe.	—
	1	Moderate.	Moderate.
Between 10 and 30 mm. diameter (10 cases).	2	Slight.	—
	1	,,	Slight.
	1	Moderate.	—
	2	,,	Slight.
	1	,,	Moderate.
	2	Severe.	—
	1	,,	Moderate.
Above 30 mm. diameter (5 cases).	1	—	Slight.
	1	Moderate.	—
	1	Severe.	—
	1	Moderate.	Slight.
	1	Severe.	Severe.

TABLE II.—*Negative Moloney Reactors*
(34 cases = 60 per cent.)

Cases.	Reactions to formol toxoid inoculations.	
	Local.	General.
17 ..	—	—
10 ..	Slight.	—
2 ..	Moderate.	—
2 ..	Slight.	Slight.
1 ..	Moderate.	,,
1 ..	Severe.	Moderate.
1 ..	—	Slight.

The most striking fact which emerges from an examination of the above Tables is that some sort of reaction is to be expected in 50 per cent. of Moloney-negative reactors, and in some 12 per cent. this reaction will be of more than trifling severity. A positive Moloney, however, does indicate the practical certainty of a reaction of some sort following toxoid inoculation. It will also be seen from the Tables that the size of the Moloney is not a true index of the severity of the reaction either local or general to be expected, all grades of severity appearing in each group of Moloney reactors.

Although the series is a small one (57 cases) the figures are strictly comparable with those of Moloney (50 cases). As a result of the investigation no action is to be taken with regard to varying the dosage of toxoid according to size of Moloney reaction.

Conclusion.—The Moloney test has been applied to 57 young adults (nurses). The results suggest that the test is not an accurate index either of the liability to, or severity of, the reactions to be expected in adults after the injection of formol-toxoid.

[1] Moloney, P. J., Fraser, D. T., and Fraser, C. J.: Ann. de l'Inst. Pasteur, 1929, xliii., 124.
[2] Moloney, P. J., and Fraser, C. J.: Ibid., 1928, xlii., 1420.

NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY. A vacation course in the administration of Binet-Simon tests of intelligence will be held at the Institute of Education, London, from August 14th to 24th. The course is intended for doctors and nurses and others concerned with mental hygiene, and particulars can be obtained from the National Institute of Industrial Psychology, Aldwych House, London, W.C.2.

REVIEWS AND NOTICES OF BOOKS

Injuries and their Treatment

By W. ELDON TUCKER, B.Chir. Camb., F.R.C.S. Eng., Surgeon to St. John's Hospital, Lewisham; Surgeon to the London Clinic for Injuries, Baker-street; late Registrar, Royal National Orthopædic Hospital. London: H. K. Lewis and Co., Ltd. 1935. Pp. 174. 9*s*.

THE pathology and treatment of injuries to the soft structures of the body is a subject which never seems to arouse much interest among the juniors in hospital circles. The student or resident who is bored with sprains and strains, and does not bother to learn much about their treatment, gets an unpleasant shock when he finds how much importance he is expected to attach to such injuries in general practice. Sir Humphry Rolleston notes in a preface to this volume that Mr. Eldon Tucker's interest in his subject and his knowledge have been acquired in a very practical way—by treatment of injuries in fellow athletes. Many text-books have been written dealing with a special form of treatment, such as massage, electrotherapeutics, or graduated muscular contractions; Mr. Eldon Tucker examines *all* the methods that he considers useful, and in a chapter at the beginning of his book compares the results to be obtained by each. He is then in a position to prescribe the suitable combination of methods for each injury in turn. Particularly welcome are the details of joint manipulation with comments on an appreciation of its advantages and dangers at the various stages of repair after injury. Too prolonged rest is held by the author, as by many of his colleagues, to favour fibrosis of ligaments and muscles, whilst too active massage and movements in the acute stages may increase effusion into and around the joint. The two aims of treatment are described as the promotion of sound repair of the injured structures and the absorption of the traumatic effusion as rapidly as possible; chronic affections of joints and muscles are thus avoided.

The chapters on osteo-arthritis and on fibrositis are illuminating, and the comments on the successes and failures of the osteopath are of topical interest. In the sections dealing with particular joints we are especially glad to note the insistence on the importance of the recovery of full quadriceps power in knee-joint injuries; the warning against the dangers of manipulation and of all passive movements in injuries of the elbow-joint; and the description of the exact type of manipulation to be practised at the shoulder-joint, together with its contra-indication in sprain of the supraspinatus muscle. The subject matter of this volume should be familiar to every doctor, and thanks are due to the author for having presented it in such a readily accessible form and in such small compass.

The Kidney in Health and Disease

In Contributions by Eminent Authorities. Edited by HILDING BERGLUND, M.D., and GRACE MEDES, Ph.D. With the collaboration of G. CARL HUBER, M.D., WARFIELD T. LONGCOPE, M.D., and ALFRED N. RICHARDS, Ph.D., M.D. London: Henry Kimpton. 1935. Pp. 754. 45*s*.

THIS book is said to be an "outgrowth of a symposium on the structure and function of the kidney in health and disease which took place in Minneapolis in the summer of 1930." The principal organizer of this meeting was Dr. Hilding Berglund, at that time professor of medicine in the university of Minnesota. Of the 41 contributors 37 are American and a third of these at the time of the meeting held posts in this university; the somewhat parochial atmosphere of many of the papers may be due to this fact. The standard of the contributions is rather uneven. That the bias is on the physiological and biochemical aspects of renal research is suggested by the title, but other and more clinical topics are not neglected; of particular merit is a succinct and authoritative account of the histological changes in Bright's disease by E. T. Bell. Interesting observations and discussions of the different aspects of proteinuria, including the phenomenon of Bence-Jones proteinuria, and of œdema, with an account of the technique and effects of plasmaphæresis, will also be found. The uses of renal function tests are fully described. W. L. Longcope, J. Bordley, and F. D. W. Lukens adduce further evidence of the important part played by hæmolytic streptococci in Bright's disease. On the clinical side a description of the retinal changes in nephritis and hypertension by H. P. Wagener is supplemented by an illuminating discussion of points in their pathology by J. S. Friedenwald.

F. Volhard contributes articles on hypertension, including both pale and red varieties, uræmia, and the treatment of acute diffuse glomerulitis. Few histologists would hesitate to challenge his statement (p. 249) that "the histological picture of kidney insufficiency, whether produced through subacute or severe chronic nephritis, through malignant sclerosis or amyloid disease, or through drastic reduction of healthy renal tissue, is always the same: an astonishing dilatation of the remaining tubules and a high-grade flattening of their epithelial cells. One can see at once from a kidney section whether the patient died from renal insufficiency or not." The morbid histology is unfortunately not as simple as that, and it is a pity that so renowned an authority on renal disease should utter such a misleading statement. There seems still to be a gulf between the exponents of the clinical and the pathological aspects of nephritis, which will have to be bridged before a symposium such as this is much good to the student. Senior workers, however, will find stimulating material in its pages, making it worth their while to read it.

Eden and Lockyer's Gynæcology

For Students and Practitioners. Fourth edition by H. BECKWITH WHITEHOUSE, M.B., F.R.C.S. Eng., F.C.O.G., Professor of Midwifery and Diseases of Women, University of Birmingham. London: J. and A. Churchill Ltd. 1935. Pp. 964. 38*s*.

Eden and Lockyer's "Gynæcology" has been generally regarded as one of the best standard medical text-books ever produced in this country. Prof. Beckwith Whitehouse states that for this reason he approached the task of the complete revision of the work for its fourth edition with some misgivings. It is due to him that we should record the opinion, which will certainly be shared by those who study the outcome of his efforts, that he has succeeded in maintaining the high standard previously set. The advances made during recent years in gynæcology have necessitated the addition of new subject matter and the rewriting of several sections. The chapters dealing with the physiology and pathology

of menstruation contain a balanced account of the knowledge at present available upon this intricate problem. The sections concerned with diseases of the ovaries have also been largely re-cast, with the introduction of new material under the title of Morbid Conditions of the Graafian Follicle and Corpus Luteum. Forty pages in Section 4 are allocated to the diagnosis of disease of the female pelvic organs. The latter part of the book is devoted to the operative side of treatment, and the description of each operation is preceded by a clear exposition of the indications for its performance. The careful account of post-operative treatment is invaluable.

We can offer no criticisms of any constructive value. The trouble expended by the publishers over the reproduction of the 600 illustrations, of which 36 are coloured, is the subject of well-deserved acknowledgment by the author.

Clinical Aspects of Visceral Neurology

By W. K. LIVINGSTON, M.D., Clinical Associate in Surgery, University of Oregon Medical School. London: Baillière, Tindall and Cox. 1935. Pp. 254. 22*s*. 6*d*.

THE author states in the preface to this volume that he intends to set forth his observations on the pre- and post-operative condition of 300 patients who have been treated by excision of some part of their sympathetic nervous system. Seeing that his experience has extended over a period of ten years we might expect the book to provide just that information which is most needed by those interested in the problems of visceral neurology. Any such expectation, however, is doomed to disappointment, for Dr. Livingston has occupied too much of his space in repeating well-known anatomical and physiological facts, and he has set down no clear statement of the results of his own operations. As a review of the more recent literature of the surgery of the sympathetic system the book is of real value, but a surgeon with Dr. Livingston's experience ought to add to our knowledge more than can be obtained from a bibliography.

The book refers to all the conditions for which sympathectomy has been performed, some of the references being of necessity brief, but special stress has been laid upon the surgical treatment of vascular diseases. The author's opinion, "there is no dividing line between Raynaud's disease and the Raynaud-like phenomena observed in the other clinical conditions such as thrombo-angiitis obliterans," is borne out by his records, for of 7 cases he quotes as examples of Raynaud's disease only 2 conform to the commonly accepted criteria. This unusual point of view vitiates any arguments which he brings forward regarding the nature of these vascular disorders. The number of charts of skin temperature tests bears witness to the importance of this method of investigation, but it is strange that so little is said about the effect of cooling the limbs to be tested; and since 17 out of the 22 tests used as illustrations were carried out at room temperatures of over 20° C., and in some cases at a temperature of nearly 30° C., it is unlikely that the results of these tests are at all comparable with those performed under more carefully controlled conditions. It is also remarkable that with such a wealth of available material there should have been included as an example of the effect of spinal anæsthesia the chart of a case in which the spinal anæsthetic failed to act. The chapter on surgical technique includes some useful practical suggestions, but a study of the book as a whole leaves one with the impression that an authoritative evaluation of the late results of sympathectomy has yet to be made.

Forensic Medicine

By DOUGLAS KERR, M.D., F.R.C.P.E., Lecturer on Forensic Medicine in the School of Medicine of the Royal Colleges, Edinburgh. London: A. and C. Black Ltd. 1935. Pp. 311. 15*s*.

Dr. Douglas Kerr does not put this book forward as an exhaustive work of reference. It is written for medical students, but also contains guidance for the practitioner. As police surgeon and medical referee to the city of Edinburgh he has wide experience, and he has been able to include from his own medico-legal practice several striking photographic illustrations. Expressed with the clarity which one associates with good lecturing, his chapters on professional ethics and on the relation of crime and insanity are excellent. The information on toxicology and on such special matters as blood-groups is set out in brief but comprehensive fashion. The Scottish legal procedure is as fully dealt with as the English. Such criticisms as we would offer are all trivial. It might, for instance, have been stated on p. 124 that for England the important Section 12 of the Children Act (on neglect) has been replaced by Section 1 of the Act of 1933. A like amplification is wanted on p. 188 where the 1932 enactment has been replaced as respects England by Sections 50 and 53 of the later statute. A careful study of Dr. Kerr's competent pages, doubtless destined to grow more voluminous in future editions, will enable readers to face cross-examination with confidence either in the examination room or in the witness-box in a court of law.

Lungentuberculose und Schwangerschaft

By H. BRAEUNING, Chefarzt der Fürsorgestelle für Lungenkranke in Stettin. Leipzig: Georg Thieme. 1935. Pp. 275. M. 24.

THAT pregnancy is capable of lighting up a latent tuberculous lesion and aggravating an active one has long been an accepted view; Dr. Braeuning's investigations have been directed towards the more exact measurement of these risks in the various types and stages of the disease. He concludes that during and after pregnancy severe and fatal relapse occurs in about 6 per cent. of cases, transitory aggravation in 20 per cent. As relapse is frequent quite apart from pregnancy these recurrencies must not be attributed entirely to pregnancy. In 102 cases of therapeutic or spontaneous abortion there was only one fatal relapse and three temporary setbacks. Relapse associated with pregnancy was found to be rather less common in fibrotic forms of the disease than it was in the exudative; but this again corresponds to experience in non-pregnant cases and it is therefore not justifiable to conclude that pregnancy has a particularly unfavourable influence on the exudative type of disease.

Twenty-four completed pregnancies in 22 women with cavities were followed by three severe and five transitory relapses. In advanced tuberculosis the prognosis is already so bad that pregnancy does not appear to shorten life; death before the end of the pregnancy is uncommon even when the disease is severe at its commencement. An unsuccessful

attempt was made to forecast the likelihood of relapse by means of the sedimentation test at the beginning of pregnancy.

Br. Braeuning finds little correlation between the direction in which the disease is progressing when the pregnancy starts and the probability of relapse. He cites several cases of women who, although going downhill when they became pregnant, steadily improved during and after pregnancy; others making good progress before becoming pregnant, suffered severe relapse, usually after delivery. Neither the original severity of the disease nor a tuberculous family history appear to have any influence on the likelihood of relapse.

The mortality during the first five years of life of children born from tuberculous mothers was found to be only 1 to 4 per cent. higher than the average. These figures are in striking contrast with the high mortality figures usually cited for untreated children by the advocates of B C G. The author actually finds no increase in infant mortality when the mother is suffering from open tuberculosis; a fact which he attributes to the great care which this group receives from the public health authorities. The main conclusion which may be drawn from this important investigation is a negative one. Modern research has failed to make more precise the knowledge that the strain of pregnancy in tuberculous women increases the risk of relapse.

Beesley and Johnston's Manual of Surgical Anatomy

Fourth edition. Revised by JOHN BRUCE, M.B., F.R.C.S.E., Tutor in Clinical Surgery, Royal Infirmary, Edinburgh; and ROBERT WALMSLEY, M.B., Ch.B., University Assistant and Demonstrator of Anatomy, Edinburgh University. London: Humphrey Milford, Oxford University Press. 1935. Pp. 717. 20*s*.

THE original authors of this well-known work being no longer able to cope with the responsibilities associated with the issue of a new edition, Mr. John Bruce and Mr. Robert Walmsley have taken up the burden of revision and reconstruction. They have produced a very good book, decidedly larger than in the last edition, which will meet the requirements of the present-day student. The anatomy is sound, and applied with judgment except in a few places. For example, even if one admits the possibility of the separation of the upper humeral epiphysis, it seems likely that the muscles inserted into the epiphysis have more to do with the injury than has the capsule. There is an excellent general account of the autonomic system. The writers have resisted the temptation to introduce such experimental details as frequently confuse and irritate the reader, and have produced a clear and eminently understandable account of the matter. The commoner surgical procedures which have to do with this system are shortly but well described from the anatomical side, but the few lines which deal with removal of the right lumbar trunk might be improved by some mention of the presence of the vena cava and ureter. In a future edition, some of the developmental data given throughout the book should be revised. The work seems to meet well the purpose expressed in the preface, the provision of a manual for use by senior students in the dissecting room; for such a purpose it can be heartily commended. It is well produced and clearly, if not too profusely, illustrated.

Electrokinetic Phenomena

And their Application to Biology and Medicine. By HAROLD A. ABRAMSON, M.D. American Chemical Society Monograph Series. No. 66. New York: Chemical Catalog Company, Inc.; London: Arthur F. Bird. 1934. Pp. 331. 33*s*. 6*d*.

THE American Chemical Society Monograph Series contains some most valuable works of reference to isolated chemical problems, and this volume will add to its reputation. In the space of some three hundred pages Dr. Abramson has provided a clear and comprehensive account of the application of physical methods, such as electrodialysis to biological and medical problems. The first chapter is concerned with historical development. Starting with an excellent photograph of Smoluchowski the author traces the development of the study of electrochemistry and gives in considerable detail the earlier work of Reuss, who, as he points out, was the true discoverer of electro-osmosis The way in which Dr. Abramson leads up to the conception of the electric double layer and its bearing on physico-chemical phenomena deserves special praise. The text is attractively illustrated by reproductions of the early apparatus. Later chapters deal first with the theoretical aspects of the subject and then with its practical applications to various problems of biochemistry and bacteriology. The summary of the literature is judicious and contains a useful section on the patent literature.

The Theory of Gymnastics

By Prof. JOHANNES LINDHARD, M.D., Professor of Gymnastic Physiology, Laboratorium, University of Copenhagen; Principal of State Institute of Gymnastics, Copenhagen. London: Methuen and Co. 1934. Pp. 359. 12*s*. 6*d*.

THIS is a serious analysis of gymnastics, which will be found stimulating by those interested in the various schools of physical education and in the applied theory of movement. Prof. Lindhard is somewhat antagonistic to the accepted Swedish Ling school of gymnastics. Many of his contentions, we feel, could be countered by a more understanding knowledge of the views of the best thinkers and not the average workers of this school. He discusses, in an original way, the development of gymnastics and its modifications. His critical allusions to modern system modifications, as those of Bukh, Björksten, Knudsen and Elin Falk, are not unjust. He deals at length with the various classifications of exercises, and comments on the aim and application of gymnastics as evinced by these groupings of movements. He has little use for the orthodox conception of the fundamental standing position, which in his view compares unfavourably with the classical Greek form, and he analyses the "attention" position of any system as its keynote.

Prof. Lindhard lays emphasis, illustrated by detailed anatomical facts, on the differences between the sexes, and on the desirability of different movements for men and women. This thesis he seems to pursue too far in proclaiming an arbitrary taboo on certain movements for women on æsthetic grounds. The idea that the gymnast is endeavouring to straighten the natural curves of the spine beyond Nature's intention rouses Prof. Lindhard to a brisk attack. This zeal might be modified by the consideration that the whole of civilised daily life tends to increase these curves, and the idea behind any but the most unintelligently military system is simply

a return to normal. His analysis of breathing exercises, however, provides a fresh and stimulating outlook, and his comments on the association of respiration with heart function are original and suggestive. The section on marching is also of practical interest. Throughout the book Prof. Lindhard appears to be reacting against a hypothetical antagonist; those who uphold traditional methods of gymnastics would probably agree with many of his criticisms, and would yet find adequate reasons for adapting rather than scrapping the orthodox routine.

Medicine in Persia

By CYRIL ELGOOD, M.D., M.R.C.P. Clio Medica Series. New York: Paul Hoeber. 1934. Pp. 105. $1.50.

THE attitude of the Persians to medicine seems to have been chiefly receptive, the teaching of their own Zoroaster having been modified by Egyptian, Mesopotamian, and especially by Greek influences. Successive political changes, and no doubt the artistic langour of the East, prevented their producing more than three great physicians—Rhazes, Avicenna, and Ismail. Of these, Rhazes (A.D. 850–932) is the best known for his differentiation of both measles and small-pox, but he also introduced mercury ointment, and discovered sulphuric acid amongst other things. Avicenna (A.D. 980–1037) was renowned for his celebrated "canon," founded largely on Galen and received with joy by European physicians in the sixteenth century. Ismail, who died in A.D. 1136, described exophthalmos as an accompaniment of goitre and was thus, as Dr. Elgood points out, the first to observe a sign rediscovered by Dr. Parry in 1825. On the whole the treatment of physicians by Persian monarchs appears to have been good, and it is clear from Dr. Elgood's learned and instructive work that hospitals and medical schools flourished in Persia and Bagdad long before they were founded in European countries. According to Dr. Elgood, the medicine of the New Testament shows evidence of the influence of Persian medicine, and the term Magus is the old Persian name for a Zoroastrian priest.

L'épaule

Anatomie des Formes Extérieures, Anatomie Radiographique, Chirurgie Opératoire. By ANTOINE BASSET, Professeur agrégé à la Faculté de Paris, Chirurgien de l'Hôpital Beaujon; and JACQUES MIALERET, Aide d'Anatomie à la Faculté. Paris: Masson et Cie. 1934. Pp. 292. Fr.65.

THE authors have now produced two volumes in their series dealing with the topographical anatomy and surgery of the large joints. That dealing with the knee-joint has already been reviewed in these columns; the volume on the ankle-joint is being prepared. The complete series will undoubtedly be an asset to any surgical library. The standard set by the first volume was high, and it has been well maintained. The general scheme followed here is for the most part the same as in the account of the knee-joint. The first and smaller part of the work is devoted to anatomical descriptions, including surface anatomy and radiographical appearances, both of the normal joint and of joints specially prepared by injections of the capsule and arteries. Reconstructions of the muscle relationships have been produced by drawing the muscles over radiograms. Anatomical points of surgical importance are noted. This part of the book is profusely and finely illustrated; the illustrations, indeed, are descriptions in themselves.

Operative surgery is dealt with in the second part. The authors seem to have been at pains to include every operation and every incision that can possibly be used to expose the shoulder-joint. This mass of information tends to bring confusion in its wake, even though a résumé is given at the end of the chapter on incisional approach by the five routes which are considered to be of value. In the section on injury the indications for operation are clearly presented. Three principles are laid down: (1) in all injuries in the region of a joint it is essential to make sure whether the joint itself is or is not involved; (2) in all non-infected articular injuries closure without drainage is to be performed; and (3) all infected injuries of joints are to be treated by free drainage. Exploration by open incision, dividing layer by layer, of any wound suspected of opening into the joint is recommended. The futility and danger of exploring by a probe is emphasised. Dislocation of the shoulder is discussed at length in as far as the injury may require open operation.

The consideration here devoted to the after-results of the various surgical procedures will be welcomed.

Anatomy: The Thorax

Fourth edition. Part V. (Catechism Series). By C. R. WHITTAKER, F.R.C.S.E., F.R.S.E., Lecturer on Anatomy, Surgeons' Hall, Edinburgh. Edinburgh: E. and S. Livingstone. 1935. Pp. 59. 1*s.* 6*d.*

THIS well-known series certainly helps those students to whom all the institutes of medicine (as well as that art itself) are simply exercises for their memories and hardly at all for their reasons. For these, books of this kind can be recommended, not as treatment of the condition but to relieve or hide the symptom. This little book is full of accurate information, from cover to cover, but that is not to say that it can teach thoracic anatomy to those who will not use their faculties properly. On the other hand, it may help those who have some knowledge of the subject to get their information in order.

REPORTS AND ANALYSES

MOUSSEC

(MOUSSEC LTD., 175–6, PICCADILLY, W.1)

THIS is a sparkling wine of the champagne type prepared from imported grape must and fermented in this country by suitable selected champagne yeasts. The treatment of the wine during and after fermentation is the same as carried out in the well-known wine houses in France. When analysed the following results were obtained:—

Alcohol (by volume)	12·0	per cent.
Equivalent to proof spirit	20·65	,,
Total extractives	3·93	,,
Consisting of—		
Invert sugar	1·97	,,
Cane sugar	0·29	,,
Fixed acidity (as tartaric acid)	0·51	,,
Mineral matter, &c.	1·16	,,
Volatile acidity (as acetic acid)	0·06	,,

The wine has the appearance, composition, and general properties of an ordinary dry French champagne. It is light and pleasant to the palate, and has an agreeable aroma. The manufacturers would seem to have succeeded in making, in this country, an attractive and wholesome wine closely resembling the imported product.

THE LANCET

LONDON: SATURDAY, JULY 6, 1935

THE INFLUENZA VIRUS IN RELATION TO PROPHYLAXIS AND TREATMENT

IF there are any who are still truly in doubt whether the prime cause of epidemic influenza is a filtrable virus, let them read the Linacre lecture delivered recently by Sir PATRICK LAIDLAW, F.R.S.[1] They will find there set out with admirable clearness the evidence which LAIDLAW and his colleagues, C. H. ANDREWES and WILSON SMITH, have produced in support of the virus hypothesis. It is a record of brilliant work which makes a most convincing story, the more so because of the restraint with which it is told, and because of the scrupulous care with which each fact has been weighed and examined before being accepted.

The history of the virus hypothesis of the cause of influenza falls naturally into two periods. Prior to 1933 the only available experimental animal was man, on whom the hypothesis could not be adequately tested, and though evidence had been obtained in support of the virus theory, it fell far short of convincing proof. In 1933 came the important announcement in our columns by SMITH, ANDREWES, and LAIDLAW [2] that the ferret was susceptible to influenza. A new era in influenza research was inaugurated and the march of events has been rapid. The demonstration in 1933 that a filtrable virus is present in the nasopharynx of early cases of epidemic influenza and that specific antibodies can be demonstrated in the blood of human and ferret convalescents was soon followed by the discovery that the mouse is susceptible to the influenza virus and that it is possible to prepare a specific antiserum in the horse.[3] The group of workers at Hampstead were now in a position to isolate and type viruses from subsequent cases of influenza. The year 1934 proved disappointing inasmuch as there was no widespread epidemic of influenza in London from which to obtain material, but the one strain isolated was shown to be identical with the 1933 strain. In the winter of 1934–35 eight new strains were obtained, six from an outbreak in Shorncliffe and two from the London area; these again, though not yet completely investigated, seem to be identical with those previously isolated. Added to this comes evidence from America where Dr. T. FRANCIS, Jun., working at the Rockefeller Institute, has isolated two strains of influenza virus, one from an outbreak at Porto Rico and one from Philadelphia in 1935. Both these strains are neutralised by the specific antiserum made at Hampstead by the British workers, so that it would appear that epidemic influenza is produced by one and the same virus in different parts of the world. The virus hypothesis, to quote LAIDLAW'S words, is "already transformed into a theorem."

What is the practical significance of this? The clinical observation that one attack of influenza in man does not leave a lasting immunity, and the lack of success which has attended attempts at serum *therapy* in virus infections might well suggest that these discoveries while of immense scientific interest may be of little material value in the control or treatment of epidemic influenza. That such a hasty conclusion would be quite unjustified at this stage is clear from the two new papers dealing with immunological problems of experimental influenza just published by the Hampstead team.[4 5] The ferret, they find, as the result of recovery from infection with influenza virus, becomes immune to reinfection; specific antibody is present in its blood. But after an interval of a few months this immunity wanes, the antibody titre falls, and the animal becomes susceptible to reinfection. It is important to note that the ferret becomes susceptible again despite the presence of some circulating antibody, and that its immunity can be restored by the inoculation of virus subcutaneously, a non-infective route. Now random sampling of human sera has shown that the very great majority contain antibody for the virus, presumably as the result of previous infection, and it seems just possible that, as in the ferret, the immunity possessed by humans could be reinforced by prophylactic inoculation. In this way it might be possible to tide individuals over the period of epidemics of influenza. Another point of importance which emerges from these recent studies of influenzal immunity is that the antiserum made in the horse seems to possess some therapeutic value when tested in the mouse. When serum is given along with virus, infection can be prevented; that was to be expected. But the astonishing thing is that even when given 48 hours after infection, this serum exerted a quite definite effect on the course of infection, as was evidenced by the reduced mortality-rate. In one experiment serum given even three days after infection had an appreciable effect. The authors are naturally chary in forecasting the value of this serum used therapeutically in man, but the prospect that a serum of such a high potency may be of use in the treatment of influenzal pneumonia seems sufficiently likely to make its clinical trial an exciting adventure.

THE SINGER'S NODULE

THE little nodule which makes its appearance on the vocal cord is never a danger to life or health, but is of serious importance to professional voice-users whose means of livelihood it may destroy for a prolonged period or even permanently. In England it is usually called the "singer's nodule,"

[1] Laidlaw, P. P.: THE LANCET, 1935, i., 1118.
[2] Smith, W., Andrewes, C. H., and Laidlaw: Ibid., 1933, ii., 66.
[3] Andrewes, Laidlaw, and Smith: Ibid., 1934, ii., 859.
[4] Laidlaw, Smith, and Andrewes: Brit. Jour. Exp. Path., June, 1935, p. 275.
[5] Smith, Andrewes, and Laidlaw: Ibid., June, 1935, p. 291.

though it is at least as liable to occur on the cords of other voice-users, such as school-teachers; among singers it is commoner in sopranos and tenors than in alto or bass voices, and it is fairly frequent in young children. It may be unilateral or bilateral, and is situated on that part of the vocal cord which is the "seat of election" for this and other small innocent growths. This seat of election is variously stated by different authorities to be at the junction of the anterior and middle thirds of the vocal cord, or at the middle of the cord, which position corresponds to the junction of the anterior and middle thirds of the glottis, the hinder third of the glottis being bounded by the arytenoid cartilages. Dr. JEAN TARNEAUD in an informative and erudite study of this node and its manifestation[1] gives the former, but his diagrams appear rather to favour the latter situation.

It is common ground among laryngologists that these nodules are the result of abuse or faulty production of the voice, and of the nature of a corn due to local attrition; but the exact mechanism of their causation has never been satisfactorily explained. The principal object of Dr. TARNEAUD'S monograph is to supply the deficiency, which it does in a precise and ingenious manner. Some laryngologists believe that inflammatory swelling of the cords, by bringing their centres into contact during phonation, is the cause of irritation at this spot, but Dr. TARNEAUD denies that inflammation plays any part, or that any sign of inflammation is ordinarily apparent. Inflammatory paresis of the thyro-arytenoid muscles is classically represented by an oval glottis with separation of the cords. Neither is the site of the nodule the place of maximum vibration, for he finds on examination with the stroboscope that the cords vibrate equally throughout their length. The little globule of mucus, which is sometimes seen to collect on the seat of election during phonation, would not remain on the place of maximum vibration. The existence and situation of this globule is important for the author's argument; he believes that it forms where it does because this place has pathologically become the lowest point of the cord. According to him the essential cause is a myopathic paresis of the tensors and adductors; the former causes a downward sagging of the cords, while the latter produces an eversion whereby the lowest point is directed inwards and so approaches the corresponding point of the opposite cord. It is an ingenious hypothesis, arrived at by much thought and painstaking observation, and not lightly to be dismissed. In treatment, Dr. TARNEAUD favours surgical removal of the nodule, and treats perhaps rather lightly the danger of damage to the cord even by experienced laryngologists; he rightly insists on the paramount importance of vocal re-education in the after-treatment, and is convinced that good results cannot be obtained by silence without re-education. He does not deny that cures have been obtained by vocal rest, but believes that they are rare, and he emphasises the bad moral effect of prolonged silence on the professional singer.

[1] Le Nodule de la Corde Vocale. Par Dr. Jean Tarneaud, Oto-Rhino-Laryngologiste de l'Hôpital Bellan et du Conservatoire National de Musique de Paris. Paris: Norbert Maloine 1935. Pp. 139. Fr. 30.

PHARMACEUTICAL STERILISATION

THERE has of late years been an immense increase in the quantity and variety of remedies administered by some form of injection, and the question of how the solutions used should be sterilised has thus assumed considerable importance. To ensure complete sterility means nothing short of autoclaving; many dispensing chemists do not possess autoclaves, and no one knows whether certain drugs are sufficiently thermostable to resist this process. Filtration is another process employed by the more enterprising, but this itself demands the possession of an autoclave in order to sterilise the filters; it is subject also to doubts connected with the possible adsorption of active ingredients in a solution by the filter itself. It has been a common practice to attempt sterilisation by discontinuous heating (Tyndallisation), the assumption being that spores will be transformed into vegetative bacteria during the intervals between heatings and so become vulnerable to moderate heat. This process serves well for culture media, as it did for Tyndall's hay infusions in 1881, because a nutritive environment encourages multiplication; but there is nothing in most solutions of drugs to beguile a spore into a misguided attempt to grow, and it is consequently not surprising that H. DAVIS[1] found discontinuous heating to 80° C. incapable of sterilising solutions containing spores. He described to the British Pharmaceutical Conference held last week in Belfast several further series of experiments with a bearing on this matter, which are published in the special number of the *Quarterly Journal of Pharmacy and Pharmacology* devoted to the proceedings of this conference. In the first place it would appear that if solutions are made with precautions against contamination they will often be sterile from the beginning, since he has shown that many drugs in the solid form are free from bacteria, or form solutions which are actually bactericidal (for *Staphylococcus aureus*). The former findings must be accepted with reserve, because the quantity cultivated is not specified, and the absence of growth may have been due simply to inhibition by the drug itself. The temperature of incubation is also not mentioned; it was presumably 37° C., and quite different results, though possibly of less importance to the safety of the patient, might have been obtained at a lower temperature. It has to be remembered that solutions which originally were sterile may become contaminated during repeated use, and this fact introduces the question of preservatives—another matter in which finality has by no means been reached, since no known preservative has ideal qualities, and some have known or may have unknown effects on the solutions in which they are used. DAVIS has tested a number of these, with disappointing results in the case of chlorbutol and certain *p*-hydroxybenzoic esters which have

[1] Quart. Jour. Pharmacy and Pharmacol., 1934, vii., 379.

recently found favour on the continent, and highly favourable results for merthiolate and *para*-chloro-*meta*-cresol. The only test organism used was *Staphylococcus aureus*; other bacteria and moulds might well have been found to be much more resistant.

Incomplete as this information is, it serves to explain a good deal of past experience, and may afford useful preliminary indications to anyone inclined to pursue the matter further. The fact is that ordinary cleanliness and simple boiling will obviate all but very remote risks; to remove that final residuum of danger there is no alternative to autoclaving or filtration, and one of these processes should certainly be applied to such materials as calcium chloride solutions, and solutions capable of supporting bacterial growth or used for such purposes as retrograde pyelography or injection into any other vital and vulnerable tissues. Hypodermic and intravenous medication, in spite of the frequent use of contaminated solutions, is generally safe either because the bacteria concerned are non-pathogenic or because the connective tissues and the blood are capable of disposing of them.

VARIOUS KINDS OF MILK

FEW people understand the meaning of the titles under which milk is now sold in this country, and it is satisfactory to hear that a less complex terminology is under consideration by the Ministry of Health. So far as the proposals are available the chief differences lie in the discontinuance of the present "Certified" grade; the use of the term "Certified" for milk produced under almost the same conditions as the present Grade A (T.T.) (the latter name being abandoned); and the abolition of "Grade A" in favour of a new designation "Standard," this name, however, being applied for wholesale purposes only. The simplification of nomenclature is all to the good. The new Certified milk comes from herds freed from tuberculosis and will be produced according to a fair standard of cleanliness, not more than 200,000 bacteria being present in each cubic centimetre at any time before delivery to the consumer. Such milk is almost safe as regards risk from tuberculosis, but it may of course contain *Brucella abortus* and other organisms; for example, E. J. PULLINGER,[1] examining 101 samples from 45 tuberculin-tested herds found tubercle bacilli in 1 and *Br. abortus* in no less than 70. Accordingly, for the benefit of those who demand precautions beyond tuberculin-testing and cleanliness, permission will now be granted to pasteurise Certified milk. So much for the highest grade: now we turn to the new Standard milk, on which interest will largely centre. The demise of Grade A, with its unwarranted implication of high quality, will certainly not be lamented, but it has to be noted that the requirements for Standard milk are even lower. This grade, as already stated, will not be sold as such to the public, and apparently it is defined purely in order to enable its producers to qualify for the roll of "accredited producers" under the Milk Marketing Board. The cows are not to be tested with tuberculin and the quarterly veterinary inspection they will undergo is an insufficient precaution against excretion of tubercle bacilli in the milk—apart from other risks. The requirements for production are below those for Grade A, and instead of a definite bacteriological standard a simple colour test is proposed. The details of this proposal are not yet forthcoming, but it is generally held that all the published colour tests (such as the methylene-blue reduction-time) are variable in their indications and too lenient for use in obtaining a reasonable level of cleanliness. Standard milk, like accredited milk as originally proposed, will be somewhat cleaner than ordinary market milk, but very little safer. It cannot be recommended by the medical profession as safe for consumption in the raw state and it will therefore need pasteurisation.

In the new Order pasteurised milk is to be defined very much as at present, with some small improvements. The bacterial count is to be not more than 100,000 per c.cm. at any time before delivery to the consumer; on the other hand no standard is laid down for testing the efficiency of pasteurisation and the difficulty remains that bacteria may be added in the cooler and the bottles and by multiplication after heating. Hitherto no convenient test for adequate pasteurisation has been available: the presence of tubercle bacilli can be ascertained by inoculation into guinea-pigs, but this is not a method suitable for routine testing of the efficiency of commercial plants. In these circumstances close attention should be paid to the paper by Prof. H. D. KAY and Mr. F. K. NEAVE in our last issue describing a phosphatase test and illustrating its practical utility. Phosphatase in milk, it appears, has the happy characteristic that it is destroyed at almost the same time-temperature combination as the official requirement for pasteurisation, and the presence or absence of this ferment in milk is therefore a guide to the efficacy of the heating process. KAY and NEAVE'S investigation suggests that much of the pasteurised milk they examined had been heated insufficiently, and if their test is accurate it shows a large number of pasteurising plants of all sizes both in London and elsewhere are functionally inefficient or unsatisfactorily operated. This conclusion, however, comes as no surprise, and the explanation is not far to seek. Supervision of pasteurising plant is a definitely technical task, but in practice it is in the hands of sanitary inspectors with very wide duties, few of whom really understand the criteria either for licensing or operation. Much more elaborate instruction is needed for those charged with this responsible work,[2] and it seems decidedly unfortunate that in the proposed Order, while Certified and Standard milk are to be supervised by county and county borough councils, the licences for pasteurised milk are still to be issued by the local sanitary authorities.

[1] THE LANCET, 1934, i., 967.

[2] Vide Sir W. Dalrymple-Champneys's report on the supervision of pasteurising plants. Min. of Health Rep. on Pub. Health and Med. Subjects No. 77. 1935. Reviewed in THE LANCET of May 18th, p. 1182.

This means that in the counties responsibility for these plants will be in the hands of a large number of rural sanitary inspectors without any special experience of the essential requirements; whereas under county councils it would be practicable to put all this work in the hands of a single officer who could be given the necessary training.

Talk about milk and its designations is interminable, and there must be many medical men who feel that it bears little relation to their own work. But statements such as those made by Dr. VEITCH CLARK, medical officer of health for Manchester, in the paper reported on p. 38, are really a challenge to the profession and the community as a whole. It is intolerable, he said, that we should put up with the sale of a food known to be producing an enormous bulk of disease, and he recommended pasteurisation as the principal solution of the immediate problem. Properly performed, this process will kill tubercle bacilli and *Br. abortus*, as a further paper by Mr. PULLINGER in our issue of June 8th once more illustrates. And there is no reason why it should not be properly performed if we will only insist on a high standard of equipment, supervision, and laboratory control.

ANNOTATIONS

CHRONIC RHEUMATIC DISEASES

THE British Committee on Chronic Rheumatic Diseases, already in existence under another title, was officially adopted by the College of Physicians early in 1934, for the purpose of stimulating professional interest in rheumatoid arthritis and related conditions, and encouraging the investigation of them. The committee now presents its first report,[1] a handsome volume of 170 pages. Sir Humphry Rolleston, the chairman, opens it with a foreword, which, like an operatic overture sketches the themes that are to follow. Dr. W. S. C. Copeman, the secretary, records briefly the history of the committee, which is clearly no perfunctory body, but a group of active and responsible people who feel that the profession is doing less than it ought to grapple with a common and cruel disease. Then comes a series of papers, some by members of the committee and some by others associated with it, which indicate the attitude of British medicine to the major problems of chronic rheumatism, and the lines along which some current investigations are proceeding. The first of these is the report of the nomenclature subcommittee, offering as basis for a working classification the familiar headings "rheumatoid" and "osteo-," but applying these to types of joint change, not to actual diseases. The rheumatoid type includes gonococcal and other specific arthritides, alongside Still's disease, classical rheumatoid arthritis, and climacteric villous arthritis; the osteo-arthritic type embraces some gouty joints, and Charcot's joints, as well as osteo-arthritis of traumatic and of unknown ætiology. The justification for this lies in the morbid anatomy, which is set forth in a dozen pages of excellent description.

Among the contributors Dr. John Freeman sketching the present position of allergy and hypersensitiveness in chronic rheumatism and arthritis, looks with a properly critical eye, and paints with a lively brush. "Allergy" is for him so difficult to define, so vague and variable in its uses, that he finds it more hindrance than help; he suggests indeed that the euphony of the word is more responsible for its popularity than any idea lying behind it. In the fog that covers the bacteriological aspect of chronic rheumatism he feels sure of only one thing—that infection, or more likely infections of many kinds, are essential to its causation; how and why the joint changes result from the interaction of host and micro-organism is quite obscure. Mr. Joseph Race summarises the biochemist's contributions to the subject, and gives a good account of the blood sedimentation-rate; accelerated sedimentation is due to altered proportions or properties of the plasma proteins, which, he wisely says, are greatly in need of some more investigation. Dr. C. W. Buckley, the editor, writes a valuable little clinical account of ankylosing spondylitis, based on 150 cases in his own practice. After several shorter papers of less importance come four critical commentaries, by members of the committee, in which sections of the recent literature are surveyed and discussed: Mr. Timbrell Fisher deals with pathological and orthopædic work, Dr. G. H. Oriel with the general trend of research in 1934, Dr. Buckley with neurological manifestations of vertebral rheumatism, and Dr. Francis Bach with the thyroid and parathyroids. Finally there is a bibliography of chronic rheumatism in the medical literature of the last twelve months.

We have described the contents of the report in this detail because it deserves wide attention. The idea of clinical research by means of a sort of royal commission may not at first glance seem promising, but in this disease, of which we are nearly all weary through familiarity, the first need is to awaken a brisk interest, perhaps even to spur a complacent conscience. The second is to set the problem in some sort of perspective, indicating what knowledge has so far been won, what generalisations are most likely to hold good, and warning against will-o'-the-wisp theories and catchwords that have no meaning. Both those needs are faced in this first report, and the form in which it is cast—individual contributions instead of a formal report under headings—gives it an added appeal. Except for the secretary's paper on histamine, it says little about treatment; that is to come later. In some places the views of its contributors are open to criticism, but in the main it is informed with a sober enthusiasm. It should be read by all who feel any responsibility towards the teaching or the advancement of medicine, and it should help to convert all chronic arthritics in hospital beds and out-patient departments into "interesting cases."

[1] Reports on Chronic Rheumatic Diseases, being the Annual Report of the British Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians. Number One. Edited by C. W. Buckley, M.D., F.R.C.P. x+172. Eight plates. 12*s*. 6*d*.

DUODENAL EXTRACT IN DIABETES MELLITUS

SINCE the discovery of insulin there has been much speculation as to whether it is the only substance found in the body which influences the sugar metabolism. A substance having an insulin-like action has been isolated from the mucosa of the stomach and of the duodenum.[1 2] Macallum believes that an

[1] Ivy, A. C., and Fisher, N. F.: Amer. Jour. Physiol., 1924, lxvii., 445.
[2] Dixon, W. E., and Wadia, J. H.: Brit. Med. Jour., 1926, i., 820.

insulin hormone is produced in the duodenum when sugar enters the intestines.[3] With Laughton and others[4] he studied the effect of a duodenal extract on dogs and rabbits; they found that it has no effect on a normal or a completely depancreatised dog, but that the partially depancreatised dogs were benefited when the substance was either injected subcutaneously or given by mouth. Duncan, Shumway, Williams, and Fetter[5] have now treated 30 diabetics with this extract. They took patients with mild and severe types of the disease and gave the extracts by mouth either when the patients were passing sugar or when insulin was discontinued having previously been given. Sugar-tolerance curves were performed at intervals on the milder cases. The authors conclude that the extract is of no value in reducing a distinct hyperglycæmia and has no effect when given with insulin. An effect, however, is discernible if both insulin and extract are given together for some days, and the insulin is then suddenly discontinued; if the extract had no value the glycosuria would reappear at once under these conditions, but it does not do so. A dose of 0·25 g. three times a day had as much effect as bigger doses. If the sugar tolerance is then tested, a normal curve may be obtained and this good result may persist for some weeks. The series treated included 12 cases of severe diabetes of which 8 showed a definite response, while 4 were unaffected; of 18 mild cases treated 11 were benefited while 7 did not improve. The inconstancy of these results is difficult to explain. Experiments in the treatment of diabetics are, however, always complicated by the capacity of both severe and mild cases to improve very considerably without any obvious cause. The results obtained by Duncan and his collaborators are thus by no means conclusive and can certainly not be accepted as proof of the presence of a special substance in the duodenum which is of value in the treatment of diabetes.

MEDICAL EVIDENCE OF DRUNKENNESS

AT its last meeting on June 27th the Medico-Legal Society discussed the subject of drunkenness in the courts. Comprehensive papers were given by Mr. Everard Dickson, a metropolitan magistrate, and Dr. Gerald Slot respectively on the legal and the medical side of drunkenness. The subsequent discussion naturally centred round the vexed question of proving the drunkenness of a motorist who is charged under the Road Traffic Act 1930 with being under the influence of drink to such an extent as to be unable to exercise proper control of his car. There was general agreement that drunkenness has no one symptom which it does not share with other disorders. Dr. Slot gave some useful suggestions on differential diagnosis designed to enable police surgeons and others to distinguish between the effects of drink and those of nervous disturbance, either chronic or caused by the accident, or the effects of drugs or diabetes. The testing of the suspect motorist in the police-station is not by any means a simple matter, for though his breath may smell of alcohol, it will do this if he has taken the smallest quantity. It is possible that he may be slightly under the influence of drink but still capable of having proper control of his vehicle, and other causes may account for his appearing deeply intoxicated. It was agreed that tests which called for some unusual action, such as changing direction at the word of command, were unfair in any event, and two speakers recommended as a test for memory, orientation and ordinary common sense that the suspect should be asked to look up a number in the telephone book. Sir Bernard Spilsbury, who occupied the presidential chair for the last time, emphasised the possibility that shock might simulate intoxication; a motorist might be deeply shocked by a collision and be quite unconscious that he had suffered injury. On the legal side, as Mr. Justice Humphreys pointed out, medical tests in general carry far less weight than they would before a tribunal of medical men. Juries come to their conclusion largely on matters of fact, such as the amount of alcohol the accused had taken, the circumstances of the accident and his behaviour immediately afterwards. If conviction in a particular case depended upon the medical evidence, the jury, he said, were far more likely to give the man the benefit of the doubt. The view of the meeting appeared to be that a fairly severe degree of intoxication should be proved before the motorist was convicted, though this was not expressed in so many words by any speaker. It is rather curious that no one put forward the view, which has much authoritative support, that a very slight degree of alcoholism, not amounting to drunkenness in any sense, is capable of depriving many motorists of proper control.

THE TWO-SHIFT SYSTEM IN INDUSTRY

CLOSE on one hundred years ago a prolonged industrial battle was raging which terminated in 1847 in the Ten Hours Act—while Manchester protested that profits only came from the last two hours of the twelve-hour day. This Act limited to ten hours, between 5.30 A.M. and 8.30 P.M., the working day of protected persons—i.e., of women and anyone under 18 years of age. It was, however, so drafted that employers were able to introduce the relay system, whereby they claimed to be employing one set of protected persons the first half of the day and another in the last half. In fact, they often employed the same persons from 5.30 A.M. to 8.30 P.M.; detection was impossible because the workers colluded with the employers in giving false evidence. To meet this difficulty an amending Act was passed in 1850 limiting factory hours to between 6 A.M. and 6 P.M., or 7 A.M. and 7 P.M.; and this limitation still holds for protected labour. There never has been any limitation of factory hours for adult males, and at the moment there is not likely to be. The International Labour Conference at its nineteenth session last month had before it a general draft convention on the 40-hour week and approved it in principle. But its application depends on the adoption of separate conventions for individual industries, and it looks as if it will be long before the convention will have any practical bearing on factory hours.

As regards protected labour, a report[1] has just been issued in which an influential committee under the chairmanship of Sir Malcolm Delevingne unanimously praises the two-shift system which, since the war, has been permitted under Special Orders. It permits protected persons to be employed in two successive shifts (averaging not more than 8 hours each) between 6 A.M. and 10 P.M.; the shifts are

[3] Macallum, A. B., Senr.: Canad. Med. Assoc. Jour., 1929, xx., 46.
[4] Laughton, N. B., Macallum, A. B., Rabinowitch, I. M., and Watson, E. M.: Jour. Biol. Chem., 1931, xx., 92.
[5] Duncan, G. G., Shumway, N. P., Williams, T. L., Fetter, F.: Amer. Jour. Med. Science, March, 1935, p. 403.

[1] Report of Departmental Committee on the Employment of Women and Young Persons on the Two-shift System. 1935. London: H.M. Stationery Office. Cmd. 4914. Pp. 97. 1s. 6d.

usually 6 A.M. to 2 P.M. and 2 P.M. to 10 P.M. No substantial difficulties have arisen in enforcing compliance with the Orders made; certainly no return to breaches of the relay system has been experienced. The two-shift system provides valuable elasticity in the adjustment of plant to output; it enables costly machinery to be worked 16 hours a day, whereby it can be worn out before it becomes obsolete owing to new devices or changes in fashion; it permits advantage to be taken of a glut in supplies in seasonal trades, such as vegetable canning; and it does something to lessen unemployment without increasing expensive plant. In fact the more costly the plant, the more advantageous is the system. No medical evidence was forthcoming that the standard of health of shift workers was below that of day workers, or that they suffered in any way. But a suggestion is made for a fortnightly alternation of shift, since the sleep of those on the early shift tended to be curtailed, while that of those on the second shift was correspondingly lengthened. Much consideration is given in the report to evidence scientifically collected by the Industrial Health Research Board. Information obtained from the International Labour Office at Geneva indicates that other countries use the two-shift system advantageously far more than we do. The single alternative is overtime, which by common consent stands condemned, unless for some quite unforeseen rush.

The only objections of moment concern the disturbances to social life, due to early rising and lack of transport facilities for the early shift. Should, as is probable, the system come to be more widely used, these objections will naturally be overcome. Recommendations are made for embodying, under simplified official permission, this new shift system in the hours permitted under the Factory Acts; but, wisely, only where a high standard of service is maintained in canteens and messrooms, so that full benefit may be taken of the half hour allowed for meal time. Adoption of the recommendations will constitute an important landmark in the industrial life of this country.

THE MEDICAL ART SOCIETY

THE first annual exhibition of the Medical Art Society has now been opened; a private view took place in the Council room of the Royal Society of Medicine last Friday, June 28th. Fifty-four doctors showed their work and it was of a pleasantly varied sort. Undoubtedly the technical skill of some of the exhibitors was ahead of that possessed by others, but the impression derived from the whole display was that the general level was high and that a fair proportion of the work shown would have gained a place in shows where to paint was the professional métier. The exhibition consisted largely of paintings, only 9 out of the 152 works being sculpture or woodwork, and only 22 being black-and-white drawings. The rest of the exhibits were divided into 35 oil paintings and 86 water colours, and one or two of the exhibitors showed pictures in more than one class. The diversity both of aim and technique was, as might be expected, considerable, and this was equally noticeable in the oil paintings and the water colours. Several artists, not among the veterans, were more influenced by the style and aims of masters now thought to be old-fashioned, than were their elders; others who will be found among the seniors in age, appear to have turned more deliberately to modern schools for their guidance. The exhibition shows what was common knowledge, that many doctors look for relaxation in painting, and that some acquire real proficiency. The original scheme for founding the society mentioned specifically that medical illustrations would be included in its exhibition, but only one contributor to the show followed this hint. The exhibition will remain open free of charge until July 12th. The president of the Society, Sir Leonard Hill, and the honorary secretary, Prof. C. A. Pannett (131, Queens-road, Richmond, Surrey), are to be congratulated on the successful inauguration of an interesting movement, while particular thanks are due to Mr. Norman Sylvester, curator of the Russell-Cotes Art Gallery of Bournemouth, for his assistance.

PUBERTAS PRÆCOX

PUBERTAS præcox is a rare condition of which the ætiology is so little understood that a documented case report is of universal interest. At a meeting of the clinical section of the Royal Society of Medicine three years ago [1] Dr. H. S. Le Marquand showed a prematurely developed boy whose later clinical history with the pathological conditions found post mortem is fully set out in the Royal Berkshire Hospital Reports.[2] At his death the boy was four years and ten months old and he had been under observation from the age of two and a half years. At fourteen months the genital organs and pubic hair had begun to grow with abnormal rapidity, and from that time onwards there was a remarkable increase in height, weight, and muscular strength. Sexual symptoms appeared at one year and ten months and were excited by the presence of adult females. Mischievous and destructive in his habits, he showed a tireless activity, was abnormally strong for his age, and showed great interest in mechanical devices. When only two years old he attempted to drive the farm tractors while seated on his father's lap. He was not otherwise remarkable in intelligence or habits. Physical examination revealed nothing abnormal in the central nervous system, chest, or abdomen. Between the ages of two and three years two exploratory operations were carried out in the expectation of finding a suprarenal tumour, but none was found. Three months after the second operation it was observed for the first time that he made sexual advances to small girls, having formerly been attracted only by adults. His abnormal strength about this time is witnessed by his ability to push his father's motor cycle and side-car out of the shed on to the lawn, which he did after dark.

In May and June, 1933, when he was nearly four years old, the removal of one testis and of one suprarenal gland was carried out in two operations with a view to the alleviation of symptoms. As a result sexual activity became less marked in the succeeding months; it was also noted that the hair of his head became less coarse although, as before, it grew with remarkable rapidity. At the end of February, 1934, he developed rheumatic fever and this caused his death in the following April. Graphs of the increase in weight and height show a steady upward curve except for a slight set-back after the last two operations. Analysis also shows a relative retardation in the growth of the long bones from the thirty-first to the forty-third month, during which time development of the short bones was unabated. Radiograms at the fifty-eighth month show evidence of approaching closure of the epiphyses of the long bones so that, as Le Marquand says, "if the child had lived, a stunted dwarf, with an

[1] Proc. Roy. Soc. Med., 1932, xxv., 106.
[2] Le Marquand, H. S., and Russell, Dorothy S.: Roy. Berks. Hosp. Rep., 1934–35, iii., 31.

abnormally long upper measurement and short arms and legs, would have resulted." At necropsy the only significant lesion found by Dr. D. S. Russell was a tumour about the size of a hazel-nut firmly attached to the right corpus mammillare and the adjacent tuber cinereum and suspended in the interpeduncular space. The rest of the brain, including the pineal body, was normal. Histologically the tumour presented the appearance of normal brain tissue, with fully differentiated neurones and neuroglia and occasional bundles of myelinated fibres. The hypothalamus, examined by serial section, showed no abnormality. The only other histological observation of interest was the presence of active spermatogenesis in the testis.

The interpretation of such a case has obvious difficulties. The association of pubertas præcox with tumours of the pineal body was emphasised by G. B. Pellizzi and v. Frankl-Hochwart and supported by the observations of other workers who have tended to regard the syndrome, when so associated, as a manifestation of hypo-pinealism. But a growing collection of cases in which the condition accompanies a hypothalamic tumour with an intact pineal gland clearly shows that the theory of hypo-pinealism is unsatisfactory. In many of the reported cases the hypothalamic tumour has been so extensive that it has not been possible to indicate a critical site for the lesion in relation to the syndrome. In 1931, however, some French observers[3] reported a case that was remarkably similar to the one described by Dr. Le Marquand. They concluded that the syndrome was referable to a functional disturbance of the ventral part of the hypothalamus and of the mammillary bodies. This view is strongly supported by the present case and appears at present to be the only tenable hypothesis.

SODIUM AND THE SUPRARENALS

THE value of common salt in what has been called "medical shock" has been known for over a century, for in 1831 W. B. O'Shaughnessy used intravenous injections of physiological saline in treating cases of cholera which was then raging in Newcastle. Since that time beneficial results have been noted in many conditions which give rise to this syndrome, but it is only recently that its value in Addison's disease has been recognised,[4] although L. Soddu[5] found that salt solution prolonged the lives of adrenalectomised animals as long ago as 1898. R. F. Loeb, D. W. Atchley, and J. Stahl[6] have recently reviewed the relationship of sodium to adrenal insufficiency. Loeb showed in 1932 that the acute crises of Addison's disease were associated with a sharp fall in the blood sodium, that such crises could be precipitated by withdrawal of salt and mitigated by its administration. Experimental studies on adrenalectomised dogs showed a rapid fall in blood sodium after removal of the second suprarenal; this was accompanied by a drop in the chloride and bicarbonate and a rise in potassium and non-protein nitrogen. The sodium deficiency was due to a greatly increased urinary excretion, but the nitrogen retention could not be accounted for by the usual hypothesis of prerenal deviation of water as the urinary volume was above normal. The mechanism of this abnormal sodium excretion was investigated; it was found not to be due to liberation of some abnormal acid requiring fixed base for its elimination, as the urinary ammonia showed no rise; nor was it due to diuresis as the amount of sodium excreted was relatively greater than the amount of water. The authors fall back on the explanation that the suprarenal cortex controls sodium metabolism as the parathyroids do calcium. A point of interest which emerges from some unpublished experiments is that the biochemical changes following salt withdrawal in adrenalectomised dogs are identical in character with, though less in degree than those following withdrawal of cortin. Loeb and his colleagues reach the following conclusions which are of considerable clinical significance: that a low blood sodium, although constant in Addison's disease, is not diagnostic of it; that the diagnostic test of salt withdrawal as suggested by Harrop and others[7] is too dangerous to be used; that any intercurrent infection in a patient with Addison's disease increases the requisite maintenance dose of salt or cortin, thus forming a parallel with diabetes and insulin and tetany and parathormone; and finally that if adrenal insufficiency in man be not relieved by salt it will not be relieved by commercial cortical extracts in ordinary doses. This latter statement should act as an incentive to the production of extracts of greater potency, for it is still true to say that though much may be done for sufferers from Addison's disease, the majority of cases eventually die of the condition.

THE FUTURE OF PHARMACY

IN his presidential address to the British Pharmaceutical Conference last week the chairman, Dr. F. W. Crossley-Holland, briefly sketched the development of the modern pharmacist. Three hundred years ago, he said, there were three classes of people concerned in the care of the sick: the physician who prescribed, the apothecary who dispensed, and the chemist or druggist who supplied the drugs. In course of time, and after a struggle whose acrimonious repercussions echo in the pages of Culpepper, the apothecaries attained the right of prescription as well as of dispensing and became the forerunners of the modern family doctor. Neither the physicians nor the transfigured apothecaries established any professional or social contact with the vendors of drugs and "the heritage of the practice of pharmacy from the practice of medicine contains the elements of a former dislike and distrust." None the less, as Sir Henry Dale pointed out in his address to the Pharmaceutical Society early this year, there was for a long time the "most simple and natural cōoperation" between the pharmacist and the medical practitioner. Developments over the last quarter of a century are tending to change this relationship, for there is a continuous shrinkage in the prescription of the old-fashioned remedies compounded by the chemist himself. Sera, vaccines, and biological substances of many sorts play an increasingly important part in medicine, and in addition many synthetic drugs are available to take the place of older remedies; in the handling of all these the pharmacist plays the part of a distributor only. Dr. Crossley-Holland warned his hearers that this process is likely to continue and looked about for means of establishing a new link between the pharmacist and the practitioner of medicine. He regarded the falling-off in the demand for "drugs and galenicals" as bearing a relationship to the present "trend of medical thought and practice," this trend apparently being a preference for specific as opposed to symptomatic treatment.

[3] Heuyer, G., Lhermitte, J., de Martel, and Vogt, Cl.: Rev. Neurol., 1931, ii., 194.
[4] See THE LANCET, 1934, i., 137; ibid., 1934, ii., 883.
[5] Lo Sperimentale, 1898, lii., 87.
[6] Jour. Amer. Med. Assoc., 1935, civ., 2149.
[7] Ibid., 1933, c., 1850.

Specific treatment demands accurate diagnosis, and looking about for means of establishing a closer rapproachement with the practitioners of medicine Dr. Crossley-Holland developed the thesis that pharmacists should turn their attention to medical diagnosis. "It would," he said, "be of the greatest assistance to the doctor if he could depend upon the pharmacist to undertake the examination of body secretions and excretions, to examine pathological urine and other morbid products . . . . carry out blood counts and generally to engage in the conduct of laboratory aids to diagnosis." But whether this is work properly to be undertaken by a pharmacist, however skilled in his own profession, is open to question. As Dr. Crossley-Holland said, it requires knowledge and manipulative skill; and though the pharmacist must possess the latter his present training is not calculated to fit him to deal with diagnostic problems. In fact nothing short of a full medical training can do that.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

WE have received a communication from Dr. R. Veitch Clark, president, and Mr. G. L. C. Elliston, secretary, of the Society of Medical Officers of Health, stating the policy of the Society undertaken in behalf of public health medical officers which they believe to have the approval of the public health service. The writers set out the aims of the Society, its services in behalf of the public and its members and its freedom from political bias. And they call attention to the coöperation existing between the British Medical Association and the Society, in view of the activities of a medical body, which they do not name, but which they assert is for the first time claiming to represent the interests of public health medical officers. The council of the Society, through the president and executive secretary, are therefore reaffirming their position, drawing the special attention of public health medical officers to a leading article on the subject which appeared in the *British Medical Journal* of June 1st (p. 1127). "They feel that it is of the utmost importance that both public health medical officers and local authorities should not be confused by the arbitrary action of another medical body in putting forward a new salaries scale and a new method of negotiation, the adoption of which is being urged upon medical men and local authorities on grounds not dis-associated from politics." The council believe that it is unnecessary to appeal to the loyalty of the fellows towards securing that their present objects and methods of action are adhered to. With regard to the main practical point in which the coöperation between the B.M.A and the Society of Medical Officers of Health exists, namely, that of the scale of salaries, a scheme arranging the scales was adopted in 1925, has been in existence ever since and has always been supported by THE LANCET.

SURVIVAL BY PERFUSION

HITHERTO the perfusion of isolated mammalian organs has been limited to experiments of short duration owing to the numerous conditions which militate against the indefinite maintenance of an artificial circulation. The difficulties lie not so much in the attainment of asepsis as in the gradual deterioration of the preparation from other causes; in an experiment which is only going to last for a few hours aseptic precautions are usually regarded, perhaps wrongly, as a waste of time. Either as a result of procedures to render it incoagulable, or because it is circulating in an unnatural environment, the shed blood used for the perfusion develops "toxic" properties which lead to progressive vasoconstriction and œdema in the isolated organ. For this reason lungs are usually inserted in the circuit to "detoxicate" the blood, but they also become œdematous in time; J. de B. Daly believes the toxic properties to be due to the precipitation of some solid material which is filtered out by the lungs, and has successfully replaced these by filters, but it is doubtful whether this is a complete solution of the problem. Another important factor is the intermittency of the circulation. It is well known that a mere head of pressure equal to the arterial pressure is useless for prolonged perfusion, and that a pulsatile flow must be provided. Owing to the almost inevitable inclusion of rigid glass tubes in the circuit, it is impossible to guarantee that a mechanical pump will reproduce the heart beat exactly from the point of view of the organ; moreover, although immense improvements in perfusion pumps have been made, a certain degree of trauma to the blood is inevitable, and this may have something to do with the development of its toxic properties. Therefore as we pass from the heart-lung to the pump-lung, and from this to the pump-oxygenator circuit which contains no vital tissue except the organ under investigation, the difficulties of even short perfusions increase enormously. Even when "successful" the organ is not necessarily working normally; thus the kidney secretes urine, but it is not normal urine. These are but the outstanding and well-recognised difficulties, and the claim recently reported from Dr. Alexis Carrel's laboratory in the Rockefeller Institute, New York, that organs have been kept alive under artificial conditions for as long as twenty days implies that the additional problem of elimination of metabolites has been solved and that one of the most sensational advances in the history of physiology has been made. The details of the Carrel-Lindbergh "life-chamber" will be awaited with keen interest to all those engaged in the study of normal and abnormal function.

THE Dr. Jessie Macgregor triennial prize in medical science has been awarded to Dr. Mary Broadfoot Walker, of St. Alfege's Hospital, London, for her work on physostigmine in the treatment of myasthenia gravis.

THE death is announced at Philadelphia of Prof. Thomas McCrae, physician to the Jefferson and Pennsylvania Hospitals, Philadelphia, whose collaboration with Sir William Osler in the production of the "System of Medicine" has made his name deservedly familiar to the medical world. Prof. McCrae was 65 years of age.

A DOMINION LUNCHEON.—Three medical men who have held, or are holding, high office in the Dominions—namely, Sir Stanley Argyle, late Premier of Victoria, Dr. H. A. Bruce, Lieut.-Governor of Ontario, and Mr. S. M. Huggins, Prime Minister of Southern Rhodesia—were entertained at a luncheon given at Grosvenor House, Park Lane, on June 27th, by officers of the British Medical Association. Those present included Mrs. Bruce, Lord Dawson, Sir Humphry Rolleston, Sir George and Lady Badgerow, Sir Harry Batterbee, Sir Henry and Lady Brackenbury, Sir Thomas and Lady Dunhill, Sir Thomas Stanton, Sir Holburt Waring, Dr. and Mrs. G. C. Anderson, Mr. and Mrs. Rowley Bristow, Dr. Alfred Cox, Dr. and Mrs. J. S. Fairbairn, Mr. and Mrs. L. Ferris-Scott, Mr. and Mrs. Bishop Harman, Dr. C. O. Hawthorne, Dr. and Mrs. Robert Hutchison, Dr. and Mrs. E. K. le Fleming, Dr. and Mrs. W. Paterson, Dr. S. Watson Smith, and Mr. H. S. Souttar.

PROGNOSIS

A Series of Signed Articles contributed by invitation

LIX.—PROGNOSIS IN STREPTOCOCCAL INFECTIONS OF THE SKIN

In a consideration of eruptions caused by streptococcal infection two groups must be differentiated: (1) those due to invasion of the skin by living and actively multiplying organisms; (2) those which are cutaneous reactions to streptococcal toxin, absorbed from some focus of infection, or to the organisms themselves circulating and reaching the skin in the blood stream. The latter group I have termed streptococcides (THE LANCET, 1921, ii., 483), thus bringing them into line with the tuberculides, trichophytides, and levurides, although Sabouraud has unfortunately employed this term to indicate certain *external* streptococcal infections.

In this article the first group only will be considered. Unlike certain strains of staphylococci (*Staph. cutis communis*), streptococci are not normal habitants of the skin, although some varieties are constantly present on the mucous surfaces of the mouth, throat, and intestine (*Strep. salivarius, fæcalis, &c.*). Like the more virulent strains of staphylococci (*Staph. pyogenes aureus*), however, pathogenic streptococci (*Strep. pyogenes longus*) are frequent invaders of the skin, where they may cause lesions of various types. Certain differences between staphylococci and streptococci as regards their infection of the skin may be tabulated as follows:—

STAPHYLOCOCCI	STREPTOCOCCI
1. Some strains may be considered as natural habitants of the skin.	1. Are more likely to invade the skin either from some previous host, or from mucous membranes.
2. Tend to involve the pilo-sebaceous follicles, so that most staphylococcal eruptions are primarily follicular.	2. Have no predilection for the follicles, but tend to involve the natural folds of the skin and the muco-cutaneous junctions, and to cause fissures.
3. Do not, as a rule, cause lymphangitis or adenitis.	3. Are prone to invade the lymphatics and cause adenitis.
4. Are powerfully chemiotactic for polymorphonuclear leucocytes, thus producing "laudable pus."	4. Are less pyogenic, and tend to provoke an exudation of serum, containing only a few cells.
5. Staphylococcal lesions usually remain *pure*—i.e., do not become secondarily infected with other organisms.	5. Streptococcal lesions always become secondarily infected with staphylococci.

The following streptococcal affections of the skin will be considered: (1) impetigo contagiosa; (2) impetigo pityrodes; (3) ecthyma; (4) intertrigo; (5) fissure; (6) erysipelas (acute); and (7) recurrent streptococcal lymphangitis or relapsing erysipelas.

Many writers include the bullous impetigo of the newly born, or pemphigus neonatorum, among the cutaneous streptococcal infections, but a number of careful independent observations tend to incriminate the *Staphylococcus aureus* as the causal organism (T. H. C. Benians and B. H. Jones: THE LANCET, 1929, i., 174).

IMPETIGO CONTAGIOSA

This is caused by a superficial invasion of the skin by a *Streptococcus pyogenes longus*, the site of infection being just beneath the horny layer. In most cases the disease runs an acute and self-limiting course of some three to six weeks' duration, recovery taking place spontaneously owing to the gradual development of immunity to the infecting streptococcus. I am aware that this statement will be challenged by many, particularly by the advocates of this or that method of local treatment, but in the acute attacks to which I refer I have not discovered any topical application that will entirely prevent the appearance of new lesions. When I was in the Persian Gulf in 1916 at the hottest time of the year I had a very severe attack of impetigo, and all my therapeutic efforts were in vain, for new lesions continued to appear over a period of several weeks. Within forty-eight hours of my arrival in Bombay, however, striking improvement was manifest, and recovery was rapid. On the other hand, I believe that it is possible to abort an attack in the early stages by giving either a few intramuscular injections of Aolan, or a mixed streptococcal and staphylococcal vaccine at short intervals.

It is important to remember that impetigo contagiosa of the beard or moustache regions in men may result in a sycosis, the secondarily invading staphylococci becoming established in the hair follicles, and this risk must be combated not only by suitable local treatment, but also by measures designed to raise the patient's resistance to pyogenic infection. In certain cases recovery from an acute attack of impetigo is incomplete, a few persistent and indolent lesions remaining and being often associated with chronic streptococcal fissures in the natural folds—e.g., in the retro-auricular space, or at a muco-cutaneous junction, such as the angles of the nostrils or the labial commissures. An out-of-door holiday in a bracing climate and a generous vitamin-rich dietary will usually succeed in these cases.

IMPETIGO PITYRODES

It is to Sabouraud that we owe the recognition of this dry, attenuated form of impetigo. It is usually situated on the face, and the lesions consist of dry, furfuraceous patches of circular or irregular contour. Probably the majority of cases of the *dartre volante* or "tetter" of older authors were impetigo pityrodes. They are met with towards the end of an attack of ordinary impetigo, and one may see in the same patient all stages, from the crusted, oozing lesions, to the dry, scaly patches referred to. They are, however, also common in children suffering from chronic nasal catarrh, in whom there has been no definite attack of ordinary impetigo, and are then frequently associated with streptococcal fissures at the angles of the nostrils or mouth. Their occurrence is predisposed to by the use of strong alkaline soaps, which damage the protective horny layer, but such soaps may of themselves give rise to dry, scaly patches apart from infection. Impetigo pityrodes is contagious, and many epidemics of it have been described. It has to be differentiated from the scaly patches caused by the pityrosporon of Malassez, which are usually seen in older children and adults, and from the eczematoid form of lichen scrofulosorum (dermatitis scrofulosa).

This attenuated form of impetigo is often much more resistant to treatment than the acute variety, probably because the mildness of the infection does not stimulate the defensive reactions on the part of the host necessary to produce immunity. It is well known that spontaneous recovery usually occurs if the patient be sent to some bracing place on the east coast, and I am convinced that a diet relatively rich in carbohydrate, with an inadequate supply of protein and of vitamin-containing foods, is a predisposing factor in this condition, as it is in the chronic catarrh of the upper respiratory tract that so often accompanies it. As regards local treatment, I have found

that painting the patches daily with a 1 per cent. solution of iodine in spirit, followed by the application of an ichthyol cream or paste is effective. Alkaline soaps should not be used for washing the face.

ECTHYMA

This is merely a deep form of impetigo in which destruction of the epidermis occurs and an ulcer results; consequently the lesions leave scars after healing. They occur usually on the legs, and circulatory stasis is an important contributory factor, so that they are common in persons with acro-asphyxia, and on varicose legs, where they may be the starting point of chronic varicose ulcers. During the war ecthyma was a very frequent complication of pediculosis, and the *Streptococcus fæcalis* was often the infecting organism (H. MacCormac). The lesions will usually heal under antiseptic applications—e.g., a 1 in 4000 solution of perchloride of mercury applied as compresses after removal of the crusts. In obstinate cases, where as a rule the patient is debilitated, exposure to sunlight or the ultra-violet rays is of value.

INTERTRIGO AND STREPTOCOCCAL FISSURE

With the relapsing lymphangitis to which they predispose, these are the commonest chronic conditions caused by streptococcal infection of the skin. They may, indeed, be regarded as the cutaneous manifestations of chronic streptococcal infection of epithelial structures, which is one of the most difficult of all diseases to cure. As an example, the following case, already described by me in the Guy's Hospital Reports, 1931, lxxxi., 92, may be quoted :—

A lady, aged 28, had scarlet fever at the age of twelve, and from that time had suffered more or less continuously from so-called "eczema" of the ears. She has had five attacks of erysipelas of the face. Before her marriage there was some leucorrhœa, and, since the birth of one of her two children, there has been a thick vaginal discharge. Unless this is checked with a cotton-wool plug she develops "eczema" of her groins. She has also periodically had the "eczema" in the submammary folds. On examination she was found to have (1) typical retro-auricular intertrigo, obviously of streptococcal origin, with chronic meatitis; (2) at the upper angles of the nostrils were the remains of streptococcal fissures, doubtless the portals of entry of infection responsible for her attacks of recurrent erysipelas. The "eczema" of her groins and submammary regions to which she was subject were clearly also streptococcal intertrigo. The vaginal discharge was found by Mr. F. Cook to be due to a chronic cervical erosion. Prof. Eyre recovered a *Streptococcus pyogenes longus* with other organisms from the retro-auricular intertrigo and the nasal fissures.

This case illustrates very well the persistence over a period of sixteen years of a streptococcal infection of the skin dating from an attack of scarlet fever. The patient was very lucky in that her repeated attacks of erysipelas, arising from neglected nasal fissures, did not lead to permanent blockage of the lymphatics of the malar regions and eyelids. The patient's sister was also under my care for chronic retro-auricular intertrigo.

The prognosis as regards cutaneous lesions in chronic streptococcal infection is more favourable than where the mucous membranes are involved, but even so relapse is common, particularly in those who are compelled to live sedentary indoor lives. As has already been indicated, I believe that diet and environment are important factors, and I am convinced of the value of vaccine therapy, if it is employed judiciously and for a sufficient length of time. An important point is that the local treatment of intertrigo and fissure must be continued until a normal epithelium has been re-established, for otherwise relapse is certain.

ACUTE ERYSIPELAS

Severe cases of erysipelas, ending sometimes fatally, are less common than formerly, and I do not think that this is entirely due to more effective treatment. Possibly the diminution of chronic alcoholism may be partly responsible. A. Rendle Short (Index of Prognosis, 1915) states that the mortality in 875 cases at St. Bartholomew's Hospital, collected several years ago, was 3·5 per cent. In cases in which there was an accompanying cellulitis it was much higher—11 per cent. in 889 cases. W. H. Guy (Jour. Cut. Dis., 1919, xxxvii., 399), D. Symmers and K. M. Lewis (Jour. Amer. Med. Assoc., 1927, lxxxix., 880) and others have emphasised the therapeutic value of streptococcal antitoxin. H. Semon has recorded the remarkable effect of intramuscular injections of aolan in a case in which a fatal result had been anticipated, and in recent years I have employed this method of treatment in several cases of varying severity with uniformly good results. In the absence of unfavourable conditions, such as alcoholism, diabetes, chronic renal disease, long-standing malnutrition, and cachexia, the prognosis in acute erysipelas may be regarded as very favourable.

RECURRENT STREPTOCOCCAL LYMPHANGITIS (RELAPSING ERYSIPELAS)

This is one of the most important and serious complications of chronic streptococcal infection of the skin, because the repeated invasion of the lymphatics may eventually cause their blockage, giving rise to persistent elephantiasis and consequent disfigurement. The streptococcal fissure is the usual portal of entry to the lymphatics. When these occur between the toes, they are usually secondary to epidermophytosis. They may cause recurrent attacks of lymphangitis of the feet, ankles, and legs, the origin of which is often overlooked. I have recently seen two cases in which permanent blockage of the lymphatics with the production of elephantiasis had occurred from this cause, and in both the interdigital fissures and mycotic infection had been disregarded. The importance of thorough treatment of interdigital epidermophytosis is thus manifest, since it may in this way be indirectly responsible for permanent, though partial, disablement.

Recurrent lymphangitis, however, most frequently occurs on the face, giving rise all too often to persistent elephantiasis ("solid œdema" of Hutchinson). This condition has long been recognised under various terms—e.g., erysipelas perstans faciei (Kaposi), erythema perstans faciei (Kreibich), lymphangitis faciei (Mackenzie). The parts affected are usually the malar regions and the eyelids, and exposure to cold is certainly a factor predisposing to the attacks. In the great majority, if not in all cases, the portals of entry for infection of the facial lymphatics in this area are fissures at the angles of the nostrils. I am aware that cases have been recorded in which it was stated that no such fissures were apparent, but I believe that a careful examination with a strong light of the nasal vestibules at the time of the attacks will almost invariably reveal them, and, as a rule, they are seen even in the intervals. They are often associated with impetiginous anterior rhinitis, chronic nasal and nasopharyngeal catarrh, and sometimes with sinusitis. Their treatment is of paramount importance, since a repetition of the attacks of lymphangitis will in time inevitably lead to lymphatic blockage and permanent disfigurement. Less commonly, relapsing erysipelas involves the ear, neck, and side of the face, and is then due to chronic or recurrent fissures below the lobe of the ear, or in the retro-auricular space. Involvement

of the lips may occur from chronic fissures at the labial commissures (*perlèche*), or in the centres of the vermilion borders.

The prognosis is in these cases good, providing that persistent blockage of the lymphatics has not already occurred. Thorough treatment of the fissures with a silver nitrate paint and a mercurial ointment or paste should be carried out until a normal epidermis has re-formed. In obstinate cases a few fractional doses of X rays are sometimes helpful. Even when blockage has not yet occurred, local treatment may well be combined with injections of an autogenous or a mixed stock streptococcal vaccine, which in my opinion give better results if made intradermally. In my experience these cases are extremely sensitive to the vaccine, and even very small doses are likely to produce a local necrosis at the site of the intradermal injections and a flare up of the lymphangitis.

When persistent lymphatic œdema is already established the prognosis is much less favourable. In some cases, however, I have had good results with intradermal injections of streptococcal vaccine, given over a long period in gradually increasing doses. In America injections of *Streptococcus erysipelatis* toxin have been favourably reported upon in these cases, and G. C. Andrews (Diseases of the Skin, Philadelphia, 1930) states that they are "a specific method for the prevention of recurrences and the reduction of persistent lymphœdema in cases of chronic recurrent erysipelas."

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SPECIAL ARTICLES

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

THE twenty-first annual conference of this association was held at Southport from June 27th to 29th, under the chairmanship of Sir ROBERT PHILIP, the general subject for discussion being the

Responsibility of the Nation towards the Child in Respect of Tuberculosis

Dr. G. LISSANT COX (Lancashire) said it might readily be supposed that the sub-standard child, as compared with the normal child, was more likely to be infected by, and die of, tuberculosis either as a child or later as an adult. This did not appear to be so, as a special survey made in Lancashire had shown. But since infection might lead to disease, it was of the greatest importance to safeguard the child. It was known that under certain conditions there was a very high non-pulmonary tuberculosis death-rate in young children subject to infection from mother or father. Further, in an investigation into "contacts," it had been shown that at least 15 per cent. of known cases of pulmonary tuberculosis gave rise to secondary cases, in spite of modern antituberculosis measures, the average interval between the discovery of primary and secondary cases being 3½ years. The three factors on which methods of prevention were based were isolation, immunisation, and environment. In Lancashire they had taken as their basic principle the words: find, isolate, educate, and treat the *adult positive case.* They had always concentrated on the adult positive case, believing that this safeguarded the child. Dr. Cox briefly described the various methods of isolation—the Graucher system, hospital or sanatorium isolation, or village settlements for the whole family. With regard to the provision of hospital isolation, the number of beds which should be available throughout the country was one for every death from tuberculosis. At present only a very small minority of tuberculosis workers in this country advocated inoculations for immunisation, and the speaker thought that the present state of knowledge did not warrant a large or routine use of this method of safeguarding children against infection. The principle of environment was at least as important as that of isolation. It had been shown conclusively that a higher standard of living and of housing was a direct safeguard against infection, and to this factor was largely due the great diminution which had already occurred in the incidence and mortality of tuberculosis.

Dr. M. SKOKOWSKA-RUDOLF (Warsaw) pointed out that the two peaks of tuberculosis mortality in childhood were in the first year of life (decreasing during the 3–7–year period), and in adolescence. Preventive efforts should be directed chiefly towards these two periods. Poland had adopted Calmette's system of B C G vaccination, while among other suggested provisions for the protection of tuberculous children and those in danger of infection were the following: (1) to instal for every 100,000 of the population three pairs of beds for expectant mothers (suffering from tuberculosis) and their infants, in order to allow of proper B C G vaccination and instruction of the mothers in nursing their babies; (2) to instal 12 beds for every 100,000 of the population for inoculated children; (3) to provide a minimum of 5 hospital beds for tuberculous children of pre-school age (3–7 years) for every 100,000 of the population; (4) to provide 10 sanatorium beds for every 100,000 of the population; (5) to create forest school preventoriums for children of school age, taking as standard 40 beds for every 100,000 of the population; and (6) to instal as auxiliary establishments "half sanatoria" (day and night sanatoria). These institutions were already doing good service in the big cities of Poland, children from tuberculous families spending the greater part of the day in them.

BOVINE TUBERCULOSIS

Major A. B. MATTINSON, F.R.C.V.S., spoke particularly on infection through the milk-supply. Assuming as approximately accurate the statements that any cow giving tuberculous milk to-day would be dead within a year, that any cow affected with tuberculosis to-day would be dead in five years, and that almost every cow which would be giving milk in 1940 was either unborn or was at present free from tuberculosis, certain lines of progress were indicated, including an overhaul or at least a tightening up of the various Acts and Orders. Major Mattinson outlined many ways in which the incidence of clinical bovine tuberculosis might be brought under control, urging adequate veterinary supervision of dairy herds with the object of reducing clinical—and not merely mammary—tuberculosis at its earliest manifestation.

Dr. NATHAN RAW (London) said that while no animal could be given an immunity to a lethal dose of virulent bacilli, it could be given an immunity sufficient to resist a mild form of infection, which was the usual method by which the animal was attacked. The immunisation of calves was simple, the method Dr. Raw adopted being the injection of

cultures of human bacilli which were non-pathogenic and avirulent. The vaccine was injected when the calf was a week old, and again at the end of two weeks, and very satisfactory results had been obtained.

Dr. R. VEITCH CLARK (Manchester) said that the elimination of bovine tuberculous infection was merely a question of money and work, and neither of these was beyond the capacities of this nation. At present there were about 2000 deaths each year from this cause in England and Wales, and three-fifths of them were in persons under fifteen years of age. Tuberculous infection of cattle varied in incidence, but on the average 6 per cent. of the milk in England and Wales was infected. In Manchester during the past thirty-four years the average was 11 per cent., and during the past five years it had varied between 11 to 16. For years the country had submitted to the sale of a food known to be producing an enormous bulk of disease, and it was time that active steps were taken against the continued menace. Of the graded varieties pasteurised milk was the only one which from the point of view of protection against tuberculosis had given good results both in quality and in quantity. This form of milk-supply was the only protection at present available to the public against the conveyance of tuberculosis; it removed this source of infection and afforded a degree of protection which would almost entirely eliminate the disease. It was significant, Dr. Veitch Clark added, that the Ministry of Agriculture in its scheme for the registration of tubercle-free herds required that no calf should be fed except with milk from a tubercle-free cow or with milk which had been pasteurised or sterilised. If this was necessary for calves, surely it was infinitely more necessary for children.

Dr. M. CHRISTIANSEN (Copenhagen) said that Denmark had been the first country to organise a rational eradication of tuberculosis in cattle. As early as 1892 Prof. Bernhard Bang set out his method for combating this disease, since which time it had been adopted with or without modification in many other countries. As a result of it tuberculosis in cattle had now been eradicated completely on several Danish islands, the herds comprising a total of about 75,000 cows. Complete eradication of cattle tuberculosis had also been accomplished in several dairy districts of the larger islands. A sanitary regulation laid down that from the year 1938, at latest, all milk distributed in Copenhagen must come from healthy tuberculin-tested stocks, and several other provincial towns in Denmark had already carried through a similar ordinance concerning the milk distributed for sale.

B C G VACCINATION

Dr. E. RIST (Paris), after describing the experiments carried out by Calmette and Guérin which culminated in the strain of tubercle bacillus known as B C G, said that there was now practical unanimity of opinion as to the harmlessness of B C G administration to infants. The special expert committee appointed by the Public Health Committee of the League of Nations to examine the possibility of spontaneous variations of B C G resulting in its transformation into a virulent strain, unanimously concluded that this had never occurred experimentally, nor had a single instance of its spontaneous occurrence ever been reported. The essential question, however, was whether B C G really did protect the child against virulent infection. Objections, for the most part justified, had been raised against Calmette's first statistics; but later work, notably that of Arvid Wallgren, of Göteborg, Sweden, showed very conclusively that B C G vaccination was really able to protect previously uninfected children against virulent infection. The immunity conferred, however, was probably neither absolute nor lasting, and therefore it was important that the children should be exposed to virulent infection when the vaccinal immunity was at its height. The result of this would be to transform the relative and short-lived artificial immunity produced by vaccination into a stronger and more lasting natural immunity. Calmette and Guérin's discovery must be regarded as the first successful attempt at specific prevention of tuberculous infection in human beings.

Dr. K. NEVILLE IRVINE (London) said that, apart from the Lübeck disaster, of the fatal cases which had been reported—about 30 in number—none had been proved beyond reasonable doubt to be due to the vaccine. As to the effectiveness of B C G, only two out of more than a hundred reports from clinics all over the world found it to be inactive; all the remainder showed varying degrees of protection. While B C G was not perfect, it was worth considering that the vaccine had been proved safe for a million and a half children, that it reduced the morbidity-rate from tuberculosis in children by at least half; that already it was being used in nearly every European country except Great Britain; that it was safe in even inexperienced hands; and that it was not costly.

Sir ROBERT PHILIP, the chairman, said it would be a mistake to suppose that no work at all on B C G had been done in this country; a great many observations had in fact been carried out behind the scenes. It was clear that the vaccine was efficacious to a considerable degree, but it had not yet been settled how far the effect was permanent.

EARLY EVIDENCE OF DISEASE

Dr. CHARLES CAMERON (East Lothian) said that although infection and disease were not synonymous, yet infection must precede tuberculous disease. The day might come when the use of the various cleavage products of tuberculin would make it possible to discriminate between harmless infection and active disease, but in the meantime fuller use must be made of the information provided by the tuberculin test. The test should never be omitted in the elucidation of obscure symptoms in childhood, and a positive tuberculin reaction was a signal for the use of measures for raising the child's natural resistance, including the therapeutic use of tuberculin.

Dr. N. TATTERSALL (Leeds) said he did not look on a positive skin test as an indication for treatment. The question was: Were there any steps to be taken or tests to be applied to discover which infected child was in danger from his infection? In many cases this was not possible; seed time and harvest lay too far apart—perhaps twenty, thirty, or forty years. But he thought there was a not inconsiderable number of children in whom could be recognised a stage of infection, the unstable or significant lesion, which was an imminent danger to them, particularly in adolescence. A much wider application of X rays would bring to light far more of these unsuspected cases than was at present realised. Dr. Tattersall suggested that the time had come when every child should have a tuberculin test on entering and on leaving school life, and once in the middle years, and that every child—not the positive reactors only—should be radiographed at the same three periods. Close coöperation between the tuberculosis dis-

pensary and the school authorities would be essential. Among other measures for detecting early infection might be a wider use of the sedimentation and other blood tests. An application of these methods to children might help to show the dividing line between infection and disease in childhood, without which a knowledge of "infection" only was of comparatively little practical value.

Dr. L. S. T. BURRELL (London) pointed out the necessity for finding terms to distinguish between persons infected with tuberculosis with and those without clinical disease. The term "pre-tuberculous" was a bad one, but if used at all, it should be applied only to those with a negative tuberculin test. Those with a positive test were already infected, and in such persons certain signs or symptoms might develop which experience showed would render the individual liable to become consumptive, even when clinical and radiological examination revealed no active disease. The importance of examining children was chiefly to detect this stage of latent tuberculosis. It was a matter of the greatest difficulty to determine whether or not a child had a lesion which might develop into active disease, and which therefore needed treatment. The child might be in danger either because it already had some lesion, or because it was in contact with infection. Examination should therefore have the double object of discovering any lesion present and of determining whether the child was in sufficiently close contact with infection to render it liable to develop tuberculosis. The second of these objects was by far the more important since it aimed at prevention rather than cure. It was not only easy to overlook a tuberculous lesion which was present, but it was even more easy to imagine one when the child was weakly or undernourished. Weakly children did need treatment, and since to treat them in a sanatorium or preventorium was as good as any other method, it mattered little whether or not their disability was due to tuberculosis or not. What did matter was that the strong children should not be neglected, because they were equally susceptible to tuberculosis. Adults rather than children should be examined in an infected household, to discover a possible source of infection; and any child, robust or delicate, was in grave danger of being infected or reinfected if he remained in contact with a case of open tuberculosis.

Dr. H. MIDGLEY TURNER (Sheffield) said that children who attended for periodic examination at a tuberculosis dispensary could be divided broadly into three classes: (1) notified cases of tuberculosis; (2) infected children without symptoms or signs of active disease, who were still exposed to known sources of infection; (3) children not yet infected, but exposed to a known source of infection. The purpose of examination in the first group was to assess the general health, to ascertain that there was no evidence of toxic absorption, to examine carefully for any change in the local signs of disease in the system known to be infected, and to note whether spread to other lymphatic systems had occurred. In the second group the object was to seek any subjective or objective evidence that the child was being adversely affected by the tuberculous infection, and, if so, to localise and treat the lesion. In group 3, examination was directed towards observing the reactions of the child when infection occurred, and taking steps where necessary to begin treatment. The aim, therefore, of systematic examination of children was to detect the earliest evidence of clinical disease, remembering that the examination must be concentrated mainly on the child's lymphatic system. Sputum-positive pulmonary tuberculosis in the child was relatively uncommon.

OPEN-AIR SCHOOLS

Dr. C. J. THOMAS and Dr. NOEL BARDSWELL (London County Council) described the growth of the open-air movement in schools in London, and the remarkable improvement, physical and mental, in the children attending such schools. Two principles of exceptional importance in this work were, first, the necessity for constant vigilance to see that in all ways complete sanatorium conditions were preserved, and insidious attempts to introduce heating firmly resisted; and, secondly, the necessity for an ample supply of good nourishing food.

Dr. RALPH WILLIAMS (Board of Education) said that the day and residential open-air school had definite places in the prevention of tuberculosis, providing treatment for the child in the early and non-infectious stages of the disease, and for the delicate contact. Such schools were centres for the teaching of hygiene and were a useful means of educating the public. The design of the open-air school had also had a valuable effect on the planning of ordinary school buildings.

Councillor STEWART REID (Glasgow) and Alderman T. HAMBLETT (St. Helens) also discussed the principles upon which open-air schools were designed, and urged the adoption of such principles by ordinary schools—a measure which they thought would go a long way towards eradicating tuberculosis, not only in childhood but also in later life. School feeding was also probably one of the most important functions they had to perform.

NATIONAL CONFERENCE ON MATERNITY AND CHILD WELFARE

THE CHILD FROM TWO TO FIVE

THE first day's sessions of this conference[1] were held in the London County Hall, Westminster, on July 1st, under the chairmanship of Mr. SOMERVILLE HASTINGS (chairman of the hospitals and medical services committee, L.C.C.). After a short opening speech by Lord SNELL (chairman of the L.C.C.), the presidential address was delivered by Sir KINGSLEY WOOD, Minister of Health. He said that satisfaction with the steady progress made in child welfare must be tempered by our failure to improve the toll of maternal mortality. There had been a consistent reduction in deaths, among infants and among children between the ages of one and five years, largely brought about by the work of health visitors in the homes, and that of infant welfare centres. There had been a gradual decline in the percentage of children entering school in need of medical treatment. Few areas now failed to provide the essential features of a progressive child welfare service, but there was evidence than an inadequate number of toddlers were benefiting by it. The remedy lay in instruction of the public and arousing of public interest. It was impossible to emphasise too strongly the importance of better housing; if we could eliminate the majority of slums within the next five years, our generation would have given one of the greatest contributions to the health of the people ever made. The distressing fact that maternal mortality had not declined was a matter of grave concern and a blot

[1] Organised on behalf of the National Council for Maternity and Child Welfare and a number of constituent bodies by the National Association for the Prevention of Infant Mortality.

on the good health record of the country. Maternal mortality was a complex problem and did not admit of any simple solution. An investigation was being carried out by medical officers of the Ministry of Health, who were studying conditions in a number of areas where, in the last ten years, the mean of the maternal mortality-rate had been above the average for the country as a whole. About half of these areas had already been visited, and when the inquiry was complete the findings were to be examined by the medical department of the ministry in consultation with Sir Comyns Berkeley, and it was hoped that much might be learned from this piece of research.

Mr. SOMERVILLE HASTINGS emphasised the importance of the age-period of two to five years. A number of diseases and affections which might last throughout life had their origin in that period. Dental decay, tuberculosis, rheumatism, deafness, and nasal disease were among such complaints, and any disease at that age was liable to leave a scar on the constitution.

Dr. G. F. MCCLEARY reported on the results of an investigation promoted by the National Society for the Prevention of Infant Mortality. An inquiry form had been issued to 514 local authorities in Great Britain and Northern Ireland, who were asked to indicate what measures were employed in their areas to promote the physical and mental welfare of children from two to five years of age. Replies were received from 369 authorities, and the measures most generally adopted were found to be supervision of toddlers in centres and by health visiting, provision of food (chiefly milk), treatment of minor ailments, and orthopædic and dental clinics. Little provision had been made for child guidance clinics, day nurseries, playrooms, and playgrounds, and—particularly deplorable—only 62 nursery schools, with accommodation for about 5000 children, had been established and officially recognised, in the whole of England and Wales. The chief obstacle in promoting the welfare of children between two and five was said to be parental ignorance and apathy in 96 out of 159 replies. Other causes were stated to be bad housing, poverty and unemployment, and financial stringency. Dr. McCleary said a study of the replies left him with the impression that the most urgent needs were more nursery schools and an extensive development of instruction in parentcraft.

Dr. ETHEL CASSIE (Medical Officer for Maternity and Child Welfare, Birmingham) said she was not convinced that a really good beginning had been made. The proportion of toddlers attending centres, even when special sessions were arranged for them, was disappointingly small, and some local authorities were content if these children received one visit a year from a health visitor, while the majority were not seen more than twice a year. She thought systematic medical inspection and home visiting the first necessities.

Dr. G. F. STILL (National Institute for the Prevention of Infant Mortality) presided over the afternoon session, when the subject for discussion was Facilities for Convalescent Treatment of the Child under Five Years.

Dr. MARGARET HOGARTH (Divisional Medical Officer, L.C.C.) said that the London County Council arranged holidays for about 6000 children a year, but many of these were not strictly convalescent, and the accommodation for children under five was very small. The toddler was nobody's child, falling between the Ministry of Health and the Board of Education. This was very unfortunate in view of the great importance of the early years; the younger the child the more lasting were the results of illness or privation. Convalescence was carefully organised to ensure that children who had been really ill were sent to homes where skilled care was available. The home conditions to which children returned were most important; homes were visited and advice was given. In connexion with new housing schemes it would be a good thing if mothers could be helped with their budgeting and cooking. Provision of convalescence for young children was an urgent need and one which should be recognised by every local authority.

Dr. LESLIE HOUSDEN spoke on the main causes of ill-health in the children of poor homes. These he considered to be emotional unrest and unhappiness (often due to over-large families), parental ignorance, poor feeding, lack of routine and discipline, and absence of fresh air and sunshine. He recommended simple education in non-technical language, inculcating a spirit of assurance and a belief that the new-born baby is generally healthy and only requires a mother's care to keep it so. The right course, he thought, was to concentrate on the teaching of mothercraft before marriage and to interfere as little as possible afterwards.

Dr. ALAN MONCRIEFF urged the recognition of convalescent homes as an essential part of the national health services. Some conditions in young children demanded convalescence if they were to be completely cured. Chronic lung disease would largely disappear if children suffering from measles or whooping-cough could have a long period of convalescence. The same applied to tonsillectomy and chronic digestive disorders, and it was important that convalescent homes should take children earlier after acute illnesses. The length of stay must be adequate, three weeks being regarded as an absolute minimum.

(To be concluded)

MEDICINE AND THE LAW

Inquest on Human Arm Prohibited

IN our issue of June 15th our correspondent from Australia described the unusual medico-legal problem associated with the discovery of a human arm in the body of a shark on the Coogie beach. The story is carried further in the *Times* of June 25th, where a message from Sydney describes the intervention of the Supreme Court of New South Wales to stop the inquest on the ground that a human arm does not constitute a body. It is understood that a man named James Smith has been missing in circumstances suggesting the possible theory that he was murdered and that his body was disposed of by throwing it to the sharks. The arm has been identified by tattoo marks and fingerprints as the arm of James Smith. Medical evidence indicated that it was apparently severed from a dead body. A man has been charged with the murder of Smith. At the instance of the accused the Supreme Court was asked to grant an order prohibiting the inquest from proceeding. Mr. Justice Halse Rogers granted a prohibition. His decision, he said, was based solely on the question of what constitutes a body; a coroner is obliged to view a body to assist him in reaching a verdict, and an arm is not a body; if the inquest proceeded, separate limbs, found in the jurisdictions of different coronerships, might be the subject of separate inquests.

No such point arose lately in England at the inconclusive inquest on the severed legs found on the Southern Railway; but then there was no accused person who had any occasion to object. In the Australian case the defence is entitled to rely on the difficulty and danger of proving a charge of murder where there is no body, and in that connexion may be interested to prevent an arm being treated as a body even in the coroner's court. The absence of a body did not prevent a conviction for murder in England not long ago in the case of the boy whose body, by the confession of the accused, had been disposed of by placing it on a burning dump. As regards inquests in England, Section 18 of the Coroners (Amendment) Act of 1926 enables the Home Office to direct an inquisition where a coroner reports a suspicious case in which, "owing to the destruction of the body by fire or otherwise, or to the fact that the body is lying in a place from which it cannot be recovered, an inquest cannot be held except by virtue of the provisions of this section." This section was intended to cover such instances as those of a body falling into a furnace or into a disused pit shaft; it was not meant to cover cases of mere mysterious disappearance without proof of death and with no evidence of destruction or inaccessibility. In the Sydney case there seems to be good prima facie evidence of the death of James Smith. There is no statutory definition of what constitutes a body for the purpose of inquests in England. The coroner is allowed considerable discretion. Many coroners of experience open inquests on almost any recognisable portion of a human being found in suspicious circumstances and, after taking the available evidence, adjourn for a reasonable period to allow for further search and inquiry. Under Section 6 of the Act of 1887, as explained by Section 19 of the Act of 1926, the High Court in England can quash an inquest and order a fresh inquest to be held where the discovery of new facts or further evidence makes this course desirable. In Coke's Reports (5 Rep. 110) and in Hawkins' Pleas of the Crown there are dicta which suggest that a small part of the body should not count as a body for the purpose of an inquest. It is usual nowadays, however, to assume that the advance in forensic medicine and the greater value of modern post-mortem examinations have contributed so much assistance in arriving at a verdict that the dicta of Coke and Hawkins are no longer so highly respected.

The Risks of Petrol and Explosives

The annual report of His Majesty's Inspectors of Explosives for the year 1934 (Cmd. 4934, price 9*d*.) shows the wide range of dangerous accidents due to ignorance or carelessness. The inspectors have authority under the Petroleum (Consolidation) Act as well as under the Explosives Acts and, as in previous years, they ask for greater publicity in the matter of the risks of using petrol in the home. They emphasise that petrol vapour, being much heavier than air, may flow out of a basin on to the floor, be carried by the draught to the nearest fire, and on ignition may flash back and envelop the person who is using it for dry-cleaning. They explain that the rubbing of fabrics (especially silks) in petrol may cause a spark of static electricity; such accidents lead to the upsetting of the basin with probably fatal results from the ensuing fire. Waste petrol poured down a drain has caused fire or explosion and has killed workmen in sewers. Several accidents occurred in 1934 during the fuelling of motor vehicles, either through leaving the engine running or through petrol falling on hot exhaust pipes or through acetylene lamps not being extinguished. One man was killed when the backfire from a stationary engine ignited spilt petrol. Persons were injured by explosion following a match struck to examine the contents of a petrol tank. The directions printed for use with Primus stoves state that no fuel other than paraffin or kerosene should be used; somebody at Morecambe used petrol with a fatal result. Special precautions are prescribed by law in the manufacture and conveyance of explosives and in their use in mines and elsewhere. Those concerned usually know the dangers. Children, however, run risks against which, as the report shows, it is hard to protect them. Thus two boys find a couple of grenades in an ashpit and throw them on a fire. A boy uses as a football something he sees in the road; it turns out to be a phosphorus grenade which has fallen off a dust-cart; it explodes when he kicks it. Boys find a shell on War Office land and throw it about till it goes off and injures them. A woman actually uses a 37 mm. shell to break up coal until the hammering at length explodes it. Evidently abandoned war relics and trophies are a constant peril. The chemical experiments of youthful students also lead to injury. A boy scrapes out the bore of a toy cannon previously charged with a mixture of potassium chlorate, amorphous phosphorus, sulphur, and aluminium dust; another boy mixes potassium chlorate and amorphous phosphorus and pours it into a drinking straw. In both cases there is an explosion. Articles in boys' papers are believed to stimulate these adventures; in 1927 there was an outbreak of accidents of this kind after the publication of an account showing how to produce coloured fires. His Majesty's inspectors of explosives say that the schoolboy's experiments are a breach of the law and that two Orders in Council of 1894 and 1905 prohibit the manufacture of fireworks containing compositions of sulphur or phosphorus in admixture with chlorates. Unfortunately a schoolboy's education probably does not yet extend to a knowledge of the multifarious Orders in Council under the Explosives Acts. Even if he knew that his experiment was a criminal offence, he might pursue it with no less ardour. The inspectors' report admits that it is a formidable matter to extract various statutory requirements from a mass of Acts, Orders in Council, and Orders of the Secretary of State. There certainly seems a strong case for simplifying the law as well as for reiterating for public information the dangers to which the report draws attention.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

NEUROSES IN MEDICAL PRACTICE

Dr. T. A. Ross, who delivered the Morison lectures before the Royal College of Physicians of Edinburgh last week, took as his subject the teaching of the neuroses to medical students. He began by emphasising the failure of the profession either to recognise or to treat the neuroses. Over a third of the patients seen in general practice, he said, are suffering from symptoms which are psychogenetic. The nature of the symptoms is seldom recognised; the patient's ill-health is perpetuated by imaginary diagnosis such as "nervous exhaustion" and he is advised to take things easily. The failure of the medical profession to recognise neurotic symptoms was, he said, responsible for the success of quack treatment. Quack

treatment always promises cure, and this promise is sufficient to remove a large number of symptoms. Dr. Ross went on to consider the qualifications of the psychiatrist, the psycho-analyst, and the neurologist to teach the neuroses to medical students. He concluded that none of these specialists were suitable, but that the common forms of neuroses should be demonstrated to the student by the general physician who should be qualified to recognise and to treat them. He emphasised that the subject should be taught by the general physician and surgeon, so that the student should come to realise that in every case it is necessary to consider and adjust the patient's attitude to his symptoms, and to correct the fear which underlies nearly all neurotic symptoms.

Dr. Ross's lectures were much appreciated by the large numbers who attended. Dr. Ross said that his criticisms were not directed so much at the Edinburgh school as at others: he believed that the profession in Edinburgh were more alive to the importance of teaching the neuroses than were the teachers in other schools.

PARIS

(FROM OUR OWN CORRESPONDENT)

FOREIGN DOCTORS IN FRANCE

ON June 27th the Senate passed the new provisions relating to the Practice of Medicine and Dentistry by Foreigners.[1] These do not affect existing practitioners but will make it more difficult in the future for foreign doctors or foreign nationals to earn their living in France. The movement, as will be seen below, is not a new one; it is generally held to be aimed at Rumanian nationals, of whom very many take their medical course in France. The provisions are set out now for the information of our readers, though the measure may be shelved at any rate until the autumn session.

In 1933 the French Government adopted a law which compelled every doctor who wished to practise in France to fulfil two conditions: he must, in addition to a university diploma, obtain the existing State diploma, and he must also become naturalised, unless he intended to proceed forthwith to one of the protectorates. Students were not required to naturalise. The French nation has found this an unsatisfactory arrangement, as more and more students have poured into French medical schools since it was passed. As a result both Chambers have received proposals for amending the situation. M. Armbruster, by whose name the law of 1933 is commonly known, had a motion on the Order Paper of the Senate some time ago, but its discussion was postponed by the death of the Minister of Education. In the meantime the Chamber of Deputies considered proposals brought forward by M. Cousin. The two propositions were so much alike that M. Armbruster's was, by consent, set aside in favour of a discussion in the Senate of M. Cousin's proposals as passed by the Lower House, with some minor modifications. M. le Gorgeu, the rapporteur, stressed the urgent need for action, pointing out that from 1925 to 1933, inclusive, the Prefecture of Police of the Seine had registered 1974 French and 402 foreign doctors, and that two-thirds of the 1530 foreign students attending French medical schools during 1934–35 probably intended to practise in France. It was made clear in the course of the discussion that a distinction must be drawn between foreign students who came to study French medicine and dentistry, returning home to practise, and those who seek to secure the benefits of practising their profession in France. For the first class no welcome is too warm; the second must be strictly limited in order that the French national may be protected in his profession.

[1] A copy of these new provisions is available in this office for inspection.—ED. L.

THE NEW PROVISIONS

Article 1 limits the practice of medicine and dentistry in France to two classes of people: those holding the French State diploma or specially exempt under various laws of 1892–1927; and French citizens or subjects or those proceeding to countries under a French protectorate. (The words "ou sous mandat français" were added by the Chamber of Deputies, caused a certain amount of argument in the Senate and were finally dropped by consent.) In addition, foreign countries or doctors of foreign nationality may in certain cases obtain a dispensation from naturalisation under conditions of reciprocity. Such dispensations are to be given by individual decree. Special exemption is also provided for doctors from the Saar who were naturalised before March 1st, 1935.

Article 2 provides that a foreigner who possesses a diploma from his own country must pass all the French State diploma examinations but may be excused up to three years of study. The same regulations apply to those holding a French university degree of doctor of medicine except that they may be excused up to four years. This article provoked, said M. le Gorgeu, almost endless discussion before it was drawn up in the form presented to the Senate. Some people had even suggested abolishing the university diploma altogether in order to solve the problem described as "transforming a university diploma into a State one." Some of the associations of doctors and medical students wanted those who had degrees from another country to be compelled to go through the whole French curriculum, but this was regarded as a little excessive, and it was finally agreed and passed by the Senate without discussion in its present form.

Article 3 practically re-enacts the law of 1933 which does not allow foreign students any relaxation from the State diploma syllabus or examination however long they have studied in a foreign country. Any foreign student wishing to join a French medical school with a view to obtaining a State diploma must show that he has studied physics, chemistry, and biology, and must also possess all the qualifications necessary to enable him to enroll himself as a medical student in his own country. Subject to a slight amendment dealing with the position of Syria, this also was passed.

Articles 4, 5, and 6, which caused no discussion in the Senate, apply corresponding provisions to dentists and dental students and arrange for the investigation of foreign diplomas and degrees. During the first six months after the passing of this law prefects are charged with the duty of verifying the titles and diplomas of all doctors and dentists practising in France. Certain fines are laid down for practitioners who fail to comply with the requirements of verification.

The seventh Article is important in that it deals with the periods of time that must elapse before foreigners may practise, after obtaining their State diplomas. The Act of 1933 made no distinction between those who had completed their military service and those who had not. The present measure allows those who have carried out their military obligation to start practice as soon as they have obtained the State diploma, and the same privilege

is extended to anyone who has served in the Army as a volunteer since 1914. For those who have not served, owing to exemption by a military board, and for women, there is to be a period dating from the acquisition of the diploma equal to the time of service which he or she has not served. Normally this means two years, but might be less for a man who had done part of his service and then obtained exemption. During this period doctors and dentists may do locum tenens work in order to earn a living and to keep their studies fresh in their minds. Foreigners living in France are not compelled to do military service if they are over 30, if bachelors; the age is 28 if they are married and have one child, and 27 if they have two children. This exemption often encourages foreigners to postpone naturalisation until they are 30, so as to escape conscription. This practice is naturally not favoured, and such persons are penalised by a clause in this article which says that any doctor or dentist who is exempted from military service on the grounds of age must delay starting practice for double the period of military service. In any case naturalised foreigners must wait five years before they may occupy any public position, unless they have served as volunteers on active service since 1914. There was some discussion as to the meaning of "public position," and M. le Gorgeu said that the Commission had deliberately refrained from defining it, and that it would be defined by regulation afterwards. It was certainly not intended to include free medical service to the poor, or vaccination, or to interfere with the practice of his profession by a foreign specialist who happened to be the only one available in a country district.

The provisions are not to be retrospective; any foreign doctor who already holds a public office in France will continue to hold it.

An amendment introduced by M. Maurice Viollette sought to reinstate a clause which had been put in by the Chamber of Deputies and deleted by the commission which had prepared the agreed Bill for the Senate. This clause exempted from the above conditions foreign students who had actually started their studies and who applied for a naturalisation within three months. M. Viollette argued that it was very unfair to slam the door in the faces of students who had been told in 1933 that their position was safe. He provoked some applause for his point of view, but M. Armbruster and M. le Gorgeu declared that if a mistake had been made in 1933 it must be put right, and that French nationals must come before everyone else. The amendment was lost by 253 votes to 28. An amendment moved by M. E. Sari exempted foreign students who had married French women and become the fathers of French children and had already applied for naturalisation.

Article 8 repealed previous enactments contrary to the new one.

THE PARISIAN'S CHANGING MENU

The Parisian of to-day does not, it would seem, eat what his father ate 30 years ago. Various investigators have recently come to the conclusion that bread is rapidly going out of fashion and milk and butter are coming in. Opinions differ as to the reasons for the Parisian's flight from bread. Some blame the intrinsic qualities of the bread itself, which they find deplorable, and others maintain that it is deserted for milk, butter, and other good things because the standard of living has risen, and the facilities for conveying and storing perishable foodstuffs have been enormously improved; the milk in Paris a hundred years ago was highly diluted sewage with an unstinted supply of typhoid and paratyphoid bacilli. Thirty years ago, according to Dr. A. Gauducheau (Rev. d'Hyg. et de Méd. Prévent., June, 1935, p. 434), the daily menu of the average Parisian included 420 g. of bread, 213 g. of milk, and 28 g. of fat, including butter. In 1930, he ate only 320 g. of bread, or 24 per cent. less than he ate at the end of last century. But his consumption of milk has risen to 400 g., and his consumption of fats to 70 g. It may be that his calorie consumption has changed but little; what has changed is the source of his calories. It has been calculated that the peasant on the land gets half his calories from his bread which costs less than a quarter of his complete bill of fare. In well-to-do families, however, the cost of bread is hardly one-tenth of the food bill.

THE SECOND INTERNATIONAL CONGRESS OF MENTAL HYGIENE

That tireless and provident organiser, Mr. Clifford W. Beers, has already reached an advanced stage in his preparations for the Second International Congress of Mental Hygiene which is to be held in Paris, July 27th–31st, 1936. His preliminary programme contains many distinguished names and the titles of many papers on interesting subjects. Prof. Henri Claude will be the honorary president, and Dr. E. Toulouse, president of the congress and of its executive committee. Dr. A. Ley will be the vice-president of the executive committee, Dr. G. Genil-Perrin, secretary-general, and M. Robert Demachy, treasurer. The president of the programme committee will be Dr. René Charpentier, to whom all inquiries about the programme of the congress should be addressed at 119, Rue Perronet, Neuilly-sur-Seine (Seine), France. The address of the secretariat of the congress is 1, Rue Cabanis, Paris, XIV. Every "adherent member" will be asked to contribute 125 francs, and every National Mental Hygiene League 500 francs towards the expenses of the congress. Among the Anglo-Saxons listed to speak are Dr. C. S. Myers, F.R.S. (London), on mental hygiene and intellectural work; Prof. W. A. White (Washington) on the prevention of alcoholism; Prof. D. K. Henderson (Edinburgh) on the individual and social prevention of suicide; and Sir Hubert Bond (London) on a scheme for an international classification and nomenclature of mental disorders.

MATERNAL MORTALITY COMMITTEE

A CONFERENCE called by the Maternal Mortality Committee[1] was held on June 25th in the Livingstone Hall, the chair being taken by Lady Denman. The morning session was opened by Dame Janet Campbell, who explained the policy of the committee; the afternoon session by Dr. Topping, who dealt with the scheme which he had initiated at Rochdale by which the maternal mortality-rate there had been so appreciably reduced.

The speakers included Mrs. Baldwin, who urged the initiation of local committees to popularise antenatal clinics; Dr. Fairbairn, the president of the

[1] The committee is constituted as follows: Mrs. H. J. Tennant, Lady Iveagh, M.P., Miss G. Tuckwell, Lady Barrett, M.D., Mrs. Barton, Mrs. Bramwell Booth, Lady Margaret Boscawen, Lady Cynthia Colville, Lady Crozier, Lady Erleigh, Lady Fitzalan, Miss Alice Gregory, Miss Haldane, Mary Lady Harcourt, Lady Hillingdon, Mrs. Hislop, Mrs. Hubback, Mrs. Randall Hosking, Mr. Kershaw, Lady Noel-Buxton, Mrs. William Piercy, Miss Sutherland, and Mrs. Usher.

British College of Obstetricians and Gynæcologists, who commended the policy as a whole; Mr. Eardley Holland, also representing the British College, who emphasised the importance of a post-graduate training for doctors; Prof. James Young, of the Postgraduate Medical School; Dr. Harold Waller, of the Royal College of St. Katherine, who urged that the care of mother and baby should everywhere be the responsibility of one and the same public health authority, and who also emphasised the importance of a post-graduate training; and Miss Gregory, of the British Hospital for Mothers and Babies, who dealt with the training of midwives. Dr. Picton dealt with the Cheshire Antenatal Scheme and Lady Williams with the scheme in the Rhondda Valley.

The policy of the committee was summarised for the meeting as follows.

1. The institution in each area of a maternity service which, while paying attention to the varying needs and character of different localities, shall enable all women to obtain adequate antenatal, natal, and postnatal care. To this end special attention shall be paid to the following points:—

(*a*) Antenatal, natal, and postnatal care should be under the same medical guidance.

(*b*) Midwifery practice should be limited to doctors with post-graduate training and practice in obstetrics.

(*c*) Local schemes should be encouraged which would enable private practitioners so equipped to take part in the maternity services.

(*d*) The need of skilled obstetricians for all complicated cases.

(*e*) The extension of the period of midwives' training to two years.

(*f*) The advantage of a service of salaried midwives working under the direction of a hospital, a nursing association, or the local authority.

(*g*) The provision of a sufficiency of maternity beds, in properly equipped hospitals, for complicated cases, and for patients whose condition or home circumstances entail potential risk.

(*h*) An improved domiciliary service for women attended by a doctor or midwife; such service to provide trained maternity nursing.

(*i*) An adequate after-care service which is seldom, if at all, provided in maternity and child welfare schemes. Its object should be to ensure that the period of hospital and domiciliary care is sufficient for the mother's full restoration to health, and that the infant's early hold on life is secure. To this end the whole of the arrangements for the care of mother and baby should everywhere be the responsibility of one and the same public health authority.

2. Since we have not yet succeeded in applying effectively existing knowledge to the reduction either of maternal morbidity and mortality, or of the high death-rate of new-born infants, it is desirable that there should be established carefully planned model schemes in selected urban and rural districts. As part of the work thus undertaken, or as a separate task, an investigation is urgently needed of the extent to which childbirth is followed by disability. A special grant from public funds should be available for the encouragement of such schemes.

3. Compulsory immediate, confidential notification to the M.O.H. of the local supervising authority of all deaths occurring during pregnancy, and of all those following or associated with childbirth and abortion.

The following societies accepted the invitation to send delegates:—

Queen's Institute of District Nursing; Central Women's Advisory Committee of the National Union of Conservative and Unionist Associations; Women's Section of the Labour Party; Standing Joint Committee of Industrial Women's Organisations; Society of Medical Officers of Health; British Legion, Women's Section; College of Nursing; Catholic Women's League; National Women Citizens' Associations; Fabian Society, Women's Section; Midwives' Institute; National Council of Women; National Baby Week Council; National Council for Maternity and Child Welfare; National Council for Equal Citizenship; National Council of Evangelical Free Churches, Women's Council; Salvation Army; Women Public Health Officers' Association; Women's Coöperative Guild; National Liberal Federation; National Federation of Women's Institutes; Union of Jewish Women; British College of Obstetricians and Gynæcologists.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. A. Craig to *President* for course; E. Heffernan to *London*; J. F. M. Campbell to *Victory* for R.N. Hospl., Haslar; A. W. North to *President* for service inside Admiralty; F. G. Hunt to *President* for R.A.F. Medical Officers' course; and O. D. Brownfield to *Ramillies* addl.; and A. W. Cocking to *Valiant*.

Surg. Lt.-Comdrs. R. G. Anthony to *Drake* for R.N. Hospl., Plymouth; and F. G. V. Scovell to *Pembroke* for Sheerness Dockyard.

Surg. Lt.-Comdrs. (D.) O. J. Barrable to *Pembroke* for R.N.B.; L. A. Loules to *Drake* for R.N.B.; and T. Hunt to *Victory* for R.N.B.

Surg. Lts. L. G. Yendoll to *Victory* for R.N. Hospl., Haslar; W. A. Ryan to *Ladybird*; W. Greaves to *Terror II* for Singapore Naval Base; and A. Long to *Pembroke* for R.N. Hospl., Chatham.

The following promotions have been made:—

Surg.-Comdr. to Surg.-Capt.: E. C. Holtom, O.B.E., E. Moxon-Browne, H. R. B. Hull, and C. M. R. Thatcher.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Comdrs. W. H. Butcher to *Caledon*, and R. Hall to *Cardiff*.

ROYAL ARMY MEDICAL CORPS

TERRITORIAL ARMY

Lt.-Col. & Bt. Col. E. A. C. Fazan, M.C., T.D., from 5th Bn. R. Sussex R. (supern.), to be Lt.-Col. & Bt. Col.

Capt. A. Angus to be Maj.

Lieuts. to be Capts.: A. W. Henderson, W. G. Bisset, H. Sissons, T. N. Rudd, W. P. Purvis, J. T. Watkins, and R. D. W. Butler.

D. H. Young (late Cadet C.S.M., Queen's Univ. Contgt., Canadian O.T.C.), to be Lt.

Supernumerary for service with the O.T.C.—Lt. W. M. Nichols to be Capt.

ROYAL AIR FORCE

The increased work caused by the expansion scheme has led to a division of the duties of the Central Medical Board. No. 1 Central Medical Board at 3-4, Clement's Inn, London, W.C., will carry out all medical examinations in connexion with the Central Medical Establishment with the exception of those for *ab initio* entries. No. 2 Central Medical Board at Astor House, Aldwych, W.C., will carry out all *ab initio* medical examinations. The personnel of both medical boards will be held on the establishment of the C.M.E.

The undermentioned promotions have been made:—

Group Capt. to be Air Commodore: W. Tyrrell, D.S.O., M.C.

Wing Comdrs. to be Group Capts.: D'Arcy Power, M.C., K. Biggs, M.C., and E. W. Craig, M.C.

Squadron Leaders to be Wing Comdrs.: V. R. Smith, P. C. Livingston, C. P. Barber, A. Briscoe, C. T. O'Neill, O.B.E., J. K. R. Landells, and E. D. D. Dickson.

Dental Branch.—Squadron Leader L. Somerville-Woodiwis, L.D.S. is promoted to the rank of Wing Commander.

Flight Lts. W. D. Guyler to Home Aircraft Depôt, Henlow; J. E. Willoughby to Headquarters, Coastal Area, Lee-on-the-Solent.

CORRESPONDENCE

TREATMENT OF SCABIES

To the Editor of THE LANCET

SIR,—Dr. R. M. Fraser in your issue of May 25th rightly refers to the prevalence of scabies as a subject of general public interest, but some of the points which he raises provide matter for discussion. The answer to his query regarding the use of sulphur in the treatment of scabies seems to lie in the desire for a slowly volatile substance, which will penetrate the burrows made by the mites while causing the minimum amount of damage to the tissues of the host. Norman Walker in his "Introduction to Dermatology" (8th edition) says: "Were we as familiar with the causes of all infective inflammations, and had we as sure a remedy for their destruction as we have for the acarus in sulphur, the treatment of the diseases of the skin would be very much simplified." Undoubtedly treatment by sulphur, involving as it does in a proportion of cases an irritant dermatitis, is far from ideal, but it may be presumed that dermatologists throughout the world would not be content to employ such treatment without having sought, apparently unsuccessfully, an alternative which destroys the invader without damaging the host.

The substances mentioned by Dr. Fraser are not familiar to me, but it appears that their use may be open to objection. One would hesitate to expose the whole body, as is necessary in treating a case of scabies, to the action of a substance sufficiently powerful to destroy beetles. There also must be some doubt as to the efficacy of a highly volatile substance, the active principle of which would be just as likely to be volatilised into the atmosphere as to penetrate burrows beneath the skin. The difficulty of attaining complete sterility of the skin before surgical operations throws a sidelight on the problem of penetration beneath the surface of the skin.

The treatment of scabies in the Army, though differing to no great extent from that employed in civil practice, probably attains better results for the reason that the patients are controlled in hospital. In the "Danish method," which is generally employed, the patients are made to bath and scrub themselves thoroughly on admission. Marcussen's ointment is then applied and the patient is put to bed, a second application of ointment being made 12 hours later. The patient remains in an atmosphere of sulphur for 24 hours. These two applications of sulphur ointment are usually sufficient to kill the parasites. At the end of 24 hours the patient is again bathed and provided with a complete change of clothing and bedding. Meantime all his clothing and bedding has been disinfected.

Application of an ointment may be a messy method of treatment, but it at least ensures prolonged contact of the drug with the surface to which it is applied.

It will be agreed that the ambulatory treatment necessarily employed in most cases in civil practice is beset with considerably more difficulty and is probably less satisfactory, but the results obtained in the Army are reasonably good and the treatment is relatively inexpensive.

I am, Sir, yours faithfully,

R. G. SHAW,
Lieut.-Colonel, R.A.M.C.; Specialist in Dermatology, Aldershot Command.

June 22nd.

AGGLUTINATION OF VIRUS BODIES

To the Editor of THE LANCET

SIR,—In your last issue Dr. M. H. Gordon raises the question of priority in connexion with the demonstration of the specific agglutination of elementary bodies by immune sera and criticises a statement in a recent paper by Schlesinger, Signy, and Amies (THE LANCET, May 18th, 1935, p. 1145) that this phenomenon was first described by Ledingham (1931) in the case of vaccinia and fowl-pox. May I as the person concerned in, but not responsible for, the statement in question, be allowed the privilege of commenting upon it? Dr. Gordon's historical researches do not seem to have been either very profound or very critical as he has contented himself with statements copied from one review to another but all pointing to an earlier demonstration of this reaction in 1913 by Paschen and Jakobsthal. The facts are these, and they were familiar to me before I undertook the task of securing pure suspensions of the elementary bodies of vaccinia and fowl-pox, for serological tests, and of which the paper by me in 1931 (THE LANCET, 1931, ii., 525) represented the outcome. That paper contains the following paragraph: "The only evidence I can find bearing on the influence of specific immune serum on these elementary bodies is that recorded by Prof. Paschen, who found and figured in stained preparations of precipitates obtained by the interaction of immune serum and lymph from vaccinated children, agglutinated masses of elementary bodies."

This is the substance of a statement by Paschen (Deutsch. med. Woch., 1913, xxxix., 2135) who, in the course of a lecture on vaccinia and variola referred to some work he had carried out with his colleague E. Jakobsthal. What he and his collaborator actually demonstrated was a precipitation reaction taking place between lymph from vaccinated child and rabbit immune serum, in the course of which the elementary bodies present in the lymph were found to be clumped on application of staining methods. "In dem Präzipitat konnte ich nun neben amorphem Eiweiss die Körperchen in grossen Haufen agglutiniert nachweisen."

That Paschen and Jakobsthal's experiment represented the nearest approach that could be made at that time to the demonstration of agglutinins in immune sera for elementary bodies was admitted by subsequent critical reviewers (see e.g. Winkler Erg. d. allg. Path. u. Path. Anat., 1924, xxi, 45), but, so long as precipitation and agglutination effects ran concurrently owing to impurity of the virus suspension the demonstration of specific agglutination of elementary bodies by the corresponding immune sera had to wait for new methods and for nearly twenty years. All honour, however, to Prof. Paschen for making such an intriguing observation at this early date, and may I add here my tribute of respect and thanks to a veteran worker and friend who gave me much assistance when I took up the study of these bodies by new methods and has since maintained a lively interest in them. The full significance of Paschen's observation was realised only when it was shown that elementary bodies in pure suspension were clumped by immune sera and when later my colleague Dr. Eagles and I were able to supply experimental proof of the ætiological connexion between the virus of vaccinia and the bodies of Paschen. The sentence, therefore, which Dr. Gordon criticises does not seem to require any substantial qualification

in the interests of historical accuracy. One thing leads to another, and in these days it is always dangerous to say who did or did not first "describe" or "discover" anything, unless the thing described or discovered is precisely formulated.

May I be permitted to add, with reference to Dr. Gordon's further expressions of opinion in the course of his letter, that the microscopic agglutination test for variola elaborated by my colleague Dr. Amies would seem to me more scientifically founded from an immunological point of view than the macroscopic flocculation test with virus extracts, in that the former represents a simple and uncomplicated reaction between the elementary bodies of variola and the serum of the small-pox patient. In my opinion no pains should be spared to render the reagents employed in serological work with viruses the simplest and purest possible. The effective study of elementary bodies requires a lengthy apprenticeship and is in my view indispensable for any real advance in our knowledge of the biological nature of viruses.

I am, Sir, yours faithfully,

J. C. G. LEDINGHAM.

Lister Institute, London, June 29th.

ACHLORHYDRIA IN PYLORIC CARCINOMA

AN EARLY REFERENCE

To the Editor of THE LANCET

SIR,—Dr. J. Douglas Robertson has given us, in your last issue, some valuable observations on the development of achlorhydria in obstructive carcinoma of the pylorus. His conclusion that this is caused by the attendant gastritis must almost certainly be correct.

As a matter of historical interest and evidence of the early attention devoted to the pathological chemistry of the stomach by a physician of the Guy's school, I would refer him to papers by Golding Bird, in the *London Medical Gazette*, 1841–42, pp. 391 and 426. With the very laborious methods of quantitative analysis then available Golding Bird clearly demonstrated a steady decline in the percentage of hydrochloric acid in obstructive pyloric carcinoma, and also the simultaneous rise in the organic acids. He assumes, however, that the disappearance of the natural acid was due to failing vital powers.

I am, Sir, yours faithfully,

Wimpole-street, W., June 29th. JOHN A. RYLE.

FRACTURES OF THE CALCANEUS

To the Editor of THE LANCET

SIR,—May I congratulate Mr. D. C. Corry on his paper on fractures of the calcaneus involving the subastragaloid, appearing in your issue of June 22nd. I agree with him that it is essential to obtain movements of the subastragaloid and mid-tarsal joints in order to ensure a foot free from pain. The following case is of interest:—

In November, 1933, a postman reported at hospital with a history of a fall off a ladder 15 feet high on to his left heel 11 weeks previously. He had been in bed for ten days following the injury and had tried to return to work 8 weeks after the accident, but had found the foot so painful that this was impossible. On examination, movements at the ankle-joint, subastragaloid, and mid-tarsal joints were all markedly limited and painful on forcing them. There was also much periarticular thickening involving the ankle and tarsal joints. The foot was held in a pronounced valgus position. The X ray films showed a fracture of the calcaneus extending into the subastragaloid joint with shortening and widening of the bone. Impaction had taken place between the fragments and there was a good deal of overlapping. At first sight the above case presented as grave an outlook as possible, and a subastragaloid arthrodesis was considered. With two manipulations under an anæsthetic and regular treatment consisting of faradic contractions and movements, the patient was able to carry out his work as a postman at the end of 3½ months with the aid of a valgus insole. After 15 months of work he reports that the foot is still free from pain and the movements good, but it occasionally aches at the change of weather.

Pain in these cases is often described as being due to an arthritis in the subastragaloid joint. But if movement is obtained in this joint with freeing of the soft structures over the tarsal joints, a perfectly useful foot can often be obtained. Subastragaloid arthrodesis requires a patient to lie up for 4–8 months, and even after that period the foot may be painful unless the soft structures around the tarsal joints are treated. I am, Sir, yours faithfully,

Wimpole-street, W., June 29th. W. ELDON TUCKER.

LIGATURE OF SPLENIC ARTERY FOR ADVANCED SPLENIC ANÆMIA

To the Editor of THE LANCET

SIR,—I have read with great interest in your issue of April 20th the article on this subject by Mr. R. Burns-Watson. The operation of ligature of the splenic artery was referred to by J. W. McNee in his Lettsomian Lectures of 1931 (Brit. Med. Jour., 1931, i., 413) as likely to be of value in several types of splenic enlargement. I had an opportunity of discussing this question with Dr. McNee during the centenary meeting of the B.M.A. in London, and at that meeting I read a paper on Splenectomy with special reference to Splenomegalies in the Tropics. In this paper, published in the *Indian Medical Gazette*, of January, 1933, I stated that ligature of the splenic artery had been successfully performed on previous occasions and urged that this manœuvre was worthy of more extensive trial, particularly in India, where splenomegalies of the splenic anæmia type are by no means uncommon. Splenectomy is a very severe operation for such cases when extensive adhesions are present.

I have had no opportunity for performing this operation myself, as my present duties are mainly administrative, but I had hoped that other surgeons in India would be tempted to try this alternative and simpler procedure. Ligature of the splenic artery is not always easy, as it may be difficult to separate the artery from the greatly engorged veins, and ligature of the whole pedicle though easier would probably be more risky. Complications are also to be considered, and among these portal thrombosis is a serious possibility. It is gratifying to note that a surgeon in New Zealand has provided another example of the successful result of splenic ligature, and this time for an advanced case of so-called splenic anæmia.

In the *Indian Medical Gazette* of May, 1935, an article appears on Splenectomy for Tropical Splenomegally by A. N. Palit. Ten cases were operated on with a successful result in nine. But the more severe cases were apparently avoided, as ascites, signs suggesting cirrhosis, fixed immobile spleen, and so forth, are mentioned as contra-indications. It is just in these types of enlarged spleen that splenic ligature may be of value, while such cases if left to themselves usually terminate fatally. Will some surgeon in India provide us with more evidence as to the value of splenic ligature in these cases of the splenic anæmia type, which can only be removed by splenectomy with a high mortality risk. Reference is made in

the article in the *Indian Medical Gazette* to ligature of the splenic artery, but only to dismiss it as a risky and not always an easy procedure.

Has splenic ligature ever been practised for splenic leukæmia, and with what result?

I am, Sir, yours faithfully,

Madras, India, June 10th. F. P. CONNOR.

POTASSIUM CHLORIDE IN MYASTHENIA GRAVIS

To the Editor of THE LANCET

SIR,—The observations of Laurent and Walther on the influence of potassium chloride on myasthenia gravis are of very great interest. I have been able to confirm their results in two severe cases of the disease. Potassium chloride (12 grammes) in a tumblerful of water was given to each patient at 3.30 P.M. when the effect of an injection of Prostigmin 5 c.cm. had worn off. A decided improvement in the symptoms occurred, which lasted for about two hours. One patient had slight nausea and a feeling of heat.

A case of familial periodic paralysis, whose attacks occur during sleep and can be brought on at will by eating sugar late in the evening, was found by Dr. E. N. Allott to have abnormally low serum potassium during the attacks. The blood was taken about two hours before the paralysis wore off. During the intervals the blood potassium was normal.

	During the intervals.		*During an attack.*	
Serum potassium ..	17·8	mg.%	10·0	mg.%
,, ,, ..	19·3	mg.%	12·6	mg.%

The serum calcium during an attack was 9·7 mg. per cent. and 10·3 mg. per cent. during an interval.

I have to thank Dr. W. D. Wiggins, the medical superintendent of the hospital, for permission to publish these observations.

I am, Sir, yours faithfully,

M. B. WALKER.

St. Alfege's Hospital, S.E., June 24th.

NON-TOXIC ANTIMONY ADMINISTRATION

To the Editor of THE LANCET

SIR,—Judging from the analogy of allied parasitic worms, trivalent antimony derivatives should prove more serviceable in the treatment of filariasis than pentavalent compounds, and it would likewise appear that those which contain the greatest quantity of antimony metal in a non-toxic form should prove most effective in destroying the embryos in the blood stream and lymphatic system. In human trypanosomiasis L. Van Hoof[1] has shown that a total of 0·98 g. of antimony metal is well tolerated by any patient when administered in one of the new organic antimony preparations which are on trial. This is in excess of that contained in the maximum total dose of tartar emetic and suggests that these allied preparations, which seem superior in action to tartar emetic in the treatment of both trypanosomiasis and schistosomiasis, are well deserving of trial in the destruction of microfilariæ.

For the last 20 years I have investigated the least toxic methods of treating bilharzia disease and similar parasitic conditions, but impaired hearing has prevented me obtaining any recent official post or other facilities for continuing this study on an adequate scale in Natal. I should be grateful to hear from anyone who could enable me to investigate further the uses of non-toxic antimony derivatives or would care to correspond with me on the subject. There would be little cost in obtaining the medicines, for a thorough scientific investigation of their relative values and what has already been completed indicates that antimony may now be administered without risk to the numerous skin conditions for which it has always been recommended.

I am, Sir, yours faithfully,

F. G. CAWSTON, M.D.

Britannia Buildings, West-street, Durban, June 9th.

[1] Ann. Belgian Soc. Trop. Med., No. 4, 1933, vol. xiii.

CLEFT PALATE

To the Editor of THE LANCET

SIR,—I feel that I cannot allow Mr. David Levi's letter on this subject in your last issue to pass without comment. The whole object of the procedures advocated by myself has been that of restoration of function, and this can only be attained by operation based on sound anatomical and physiological principles. The proof of success lies not in the appearance of the suture line or in the apparent mobility of the palate, but in the ability of the patient to open and close the nasopharyngeal valve. There are many simple tests of proficiency in this matter, such as snorting and the ability to inflate balloons, &c. Restoration of this function is all that surgery can do and is, therefore, the aim of any repair of the palate; there is no need to do more than this and to do it in the neatest and most workmanlike fashion.

It is interesting to observe Mr. Levi repeating the remark that the palatopharyngeus plays such an important part in speech. In my dissections of many normal palates and one or two cases of cleft palate I have been quite unable to correlate the action of this muscle with the speech mechanism as observed in life in the normal person. Again it is difficult to understand Mr. Levi's horror at destruction of the tensor palati, since, as my colleague Mr. James Whillis and myself have been able to show, the principal function of the tensor is not concerned with speech.

Mr. Levi says:

"Pharyngoplasty, which was attempted even in pre-Listerian days, has been alternately used and discarded by surgeons the world over. It was brought into prominence by Rutenberg in 1876; he made a transverse incision in the pharynx and sutured it longitudinally. Botey in 1908 excised an ellipse from the posterior pharyngeal wall, and sutured the edges, while Sir Robert Woods in 1927 electrocoagulated the posterior pharyngeal wall. Mr. Wardill has modified and reintroduced Rutenberg's operation—evidently with some success—but I cannot help thinking that narrowing of the lumen of the nasopharynx is liable to interfere with the function of the palatopharyngeal sphincter."

It is news to me that, since pre-Listerian times, pharyngoplasty has been alternately used and discarded by surgeons the world over. Information at present in my possession would suggest that pharyngoplasty is gaining an increasing number of adherents. To say that I modified and reintroduced Rutenberg's operation is entirely incorrect, since my knowledge of Rutenberg, like most other peoples, dates from the publication of Dorrance's book. Pharyngoplasty, as designed by myself, was based entirely upon original anatomical research, and was not in any way founded on Rutenberg or on any one else. Since Dorrance produced his book, I have looked up Rutenberg's papers, and as I read them, admittedly with an imperfect knowledge of German, it would appear that he aimed at producing a pharyngeal scar, and only as an afterthought offered the suggestion of suturing in a longitudinal direction.

It is obvious that the method described by him was bound to be a failure and could not in any way approach the results of pharyngoplasty as carried out at the present time. Undoubtedly Rutenberg's ideas were sound, and it must be common knowledge that cases of cleft palate, subjected to removal of adenoids, very often speak very much worse after the operation. This is surely evidence in support of a need for something in the pharynx against which the palatal mechanism can act.

Mr. Levi is opposed to pharyngoplasty on the grounds that he, "cannot help thinking that narrowing of the lumen of the nasopharynx is liable to interfere with the function of the palatopharyngeal sphincter." The proof of the pudding is in the eating, and in the previous publication of my results I think I have amply demonstrated that pharyngoplasty restores the nasopharyngeal sphincter mechanism. Fortunately, Mr. Levi presents alternative methods of treatment which, he says, offer the greatest chance of success, and I think it is only fair to British surgery, and to sufferers from cleft palate in general, that he should give this benefit to others, laying his cards on the table and publishing his methods in detail together with a complete record of his results.

Finally, may I repeat, the aim of surgery of cleft palate is to restore the sufferers to normal with as little scarring, surgical or psychological, as possible. This can only be done by sound operation followed by a normal existence in which attention is not specially directed towards the child's deformity, such as inevitably occurs with speech training. I repeat, the necessity for speech training is either evidence of surgical failure or having missed the surgical boat.

I am, Sir, yours faithfully.

Newcastle-upon-Tyne, July 1st. W. E. M. WARDILL.

RADIOGRAPHY UPSIDE DOWN

To the Editor of THE LANCET

SIR,—I was interested in the annotation under this title in your issue of May 25th. Gravity certainly has a definite effect on the thoracic viscera and in the case of pneumothorax the intrapleural pressure will be found to vary considerably with the position of the patient. I have known a pressure of −12 −2 with the patient lying on the healthy side and the pneumothorax cavity uppermost to be converted into one of −5 +1 when he turned round. Presumably this change is caused by the weight of the viscera, and it is therefore important to have the patient in the same position at each refill if pressures are to be compared.

When the base of the lung is obscured in a case of effusion it can be seen by placing the patient on his side or even standing him on his head. This also enables one to get a view of the diaphragm and to detect early adherence of the base to the chest wall, a very common occurrence in effusion complicating pneumothorax. I published a short article on this subject with diagrams from X rays some years ago (Brit. Med. Jour., 1927, i., 135).

I am, Sir, yours faithfully,

L. S. T. BURRELL.

New Cavendish-street, W., July 1st.

PANEL AND CONTRACT PRACTICE

Physical or Mental Disability in an Insurance Practitioner

Clause 4 (4) of the Terms of Service provides that when the insurance committee, after consultation with the panel committee, are satisfied that owing to the continued absence or bodily or mental disability of an insurance practitioner, his obligations under the terms of service are not being adequately carried out, they may, with the consent of the Minister, give notice to the insured persons on his list that the practitioner is no longer in a position to carry out his obligations under the Terms of Service. This means in effect that although the practitioner's name is not automatically removed from the Medical List his insurance practice is scattered. The clause is not frequently brought into operation, but the London committee has just consulted with the local medical and panel committee who have concurred with their opinion that owing to the advanced age and enfeeblement of a practitioner he is not in a position adequately to discharge his obligations.

The practitioner, who registered in 1874, joined the Medical List in 1929 and changed his surname to that of his deceased predecessor with a view to carrying on the practice for the benefit of the children of the predecessor until one of them should become qualified, and so could succeed to the practice. Having regard to the special circumstances the committee consented to his employing an assistant, who, however, did practically the whole of the work, and early in 1932 the committee decided to withdraw their consent to the employment of an assistant. The practitioner appealed to the Minister and the appeal was upheld largely, it appears, on the understanding that the arrangement was likely to terminate at an early date as a result of the anticipated qualification of one or other of the children. The son qualified early in 1934 and the committee, with the concurrence of the panel committee, decided in January, 1935, to withdraw consent to the employment of an assistant as from March 31st, 1935. The son then joined the Medical List but did not succeed to the practice, and the practitioner indicated that he was introducing the son to the practice for a period of six months. The committee took the view that it had long been established that the practitioner's personal services in connexion with the practice had been very limited and they felt that the circumstances attending the so-called introduction were likely to differ in no essential particular from those which had prevailed during the past six years, and that these unsatisfactory arrangements should now be terminated.

The committee are now in a position to make a representation to the Minister of Health that owing to the advanced age and enfeebled condition of the practitioner he is not in a position adequately to discharge his obligations under the Terms of Service, with a request for the Minister's consent to the committee's making other arrangements for the medical treatment of his patients.

The Whitsuntide Conferences

Each year, round about Whitsuntide, conferences of various friendly and other societies are held, and it is rare for the medical profession to escape more or less vehement criticism, particularly in relation to their duties under the National Health Insurance Act. This year the attack centres on the profession in general rather than on the insurance doctor as such. We were told, it is reported, by a medical speaker at a congress held at Bridlington, that

the medical profession has deteriorated, that it has become thoroughly commercialised, that insured persons are not reckoned as human beings but as so many units per head for profit making by big concerns, that there is a lack of proper surgery accommodation, and that there is no careful selection of doctors for working-class districts. We are, however, glad to be assured that the bulk of the doctors would like to give the insured person a square deal. All this from a medical man is rather astonishing. If there is a lack of proper surgery accommodation, surely the insurance committee, if made aware of it, would take appropriate action, but it is neither to be expected nor desired that committees should take unto themselves a roving commission to test the conditions under which doctors are carrying on their work. The careful selection of doctors for working-class districts is another flight of fancy which hardly bears examination in the cold light of reason. Insurance doctors with the largest lists are almost invariably found in the working-class districts, and in these days of keen competition it is the man who does his job, and not the slacker, who succeeds. When it is remembered that in London alone during 1934 no less than 8,482,787 prescriptions were issued, each of them representing a consultation and a potential complaint, it is significant that in only 39 cases was it necessary for the medical service subcommittee to investigate questions concerning insurance doctors.

Whitewash

A member of an insurance committee who recently alleged that medical members of medical service subcommittees went "for the purpose of whitewashing their colleagues" was invited at the next meeting by a medical member either to resign from the committee or to withdraw his remark and apologise to the members of the subcommittee. The member withdrew the remark and apologised. This subcommittee acts in a quasi-judicial capacity, and it is the duty of its members to lean neither to the side of the "defence" nor to that of the "prosecution." It must be remembered, however, that on the purely medical aspect of cases doctors tend to share a point of view differing somewhat from that of the layman. This is the outcome not only of their common training but of their knowledge of the difficulties of coping with the emergencies of practice, and should not be attributed to a "trades union" sentiment.

OBITUARY

JAMES ROBERTSON RIDDELL, F.R.F.P.&S.Glasg.

MEDICAL ELECTRICIAN, WESTERN INFIRMARY, GLASGOW

THE death occurred on Saturday, June 29th, at Bearsden, Dumbarton, of Dr. James Riddell, a pioneer radiologist. He was born at Glasgow in 1873, the son of the Rev. John Riddell, of the Wynd church, and received his medical education at the Royal Infirmary, Glasgow. He qualified in 1897 with the Scottish double diploma and held the appointments of house physician and house surgeon at the Infirmary. He was from the beginning of his professional career interested in radiology; though he was for a time in general practice, he soon began to work under the late Dr. John M'Intyre, the well-known laryngologist, who was surgeon to the Royal Infirmary and in charge of the electro-therapeutical department. These were the early days of the introduction of X ray work into medicine and Riddell was immediately interested in the developments so promised. A radiological department was instituted in the Infirmary, much practical work was published as a result, while Riddell became the recognised X ray specialist in the city. On the outbreak of war he saw service in the East, was radiologist at Salonika to the 38th General Hospital with the rank of Major, R.A.M.C. (T.), and became X ray expert to the Scottish Command. In 1920 a lectureship in radiology was founded at the University of Glasgow and Riddell, who had some years previously been elected F.R.F.P. & S., was invited to occupy the post, which carried with it the appointment of physician in charge of the X ray department of the Western Infirmary, a post which he filled at the time of his death. He contributed to medical journals some practical essays on the employment of X ray methods in malignant disease and in uterine fibroids, and generally on the therapeutics of radium, and in 1927 he wrote a valuable handbook on medical electricity and radiology. The work was intended to inform the student mainly as to the employment of apparatus, but the general information on electrical therapeutics and reactions and the influence of X rays on living tissues were practical, and also very full considering the size of the work, while special attention was devoted to regional examination. Like so many of the early X ray workers Riddell suffered frequently from exposures, but he never allowed the amount or the character of his work to be interfered with, and must be regarded as one of the victims to scientific progress. The record of his energy supplied by his colleagues shows him to have been indefatiguable in his work and remarkably sympathetic in his attitude towards his patients, always very numerous, and many from the less fortunate classes.

JOHN MARSHALL DAY, M.D. Dub.

THE death occurred recently of Dr. John Marshall Day who had for many years been resident medical superintendent of the Cork-street Fever Hospital, Dublin. Born at Tuam, the son of Mr. Marshall Day, he received his preliminary education at the Diocesan school, Tuam, and the Rathmines school, Dublin, proceeding to Trinity College, Dublin, for his university training. He graduated as M.B., B.Ch. Dublin in 1885, took the diploma in State medicine three years later, and afterwards proceeded to the M.D. degree. His professional career largely centred round the Cork-street hospital, for shortly after graduation he received his first appointment in the institution as clinical assistant; later he was appointed a resident medical officer and finally became superintendent.

A Dublin correspondent writes: "Day speedily won a high reputation as an expert in infectious diseases and for many years enjoyed a large consulting practice in that branch of medicine. He was held in high esteem by the medical profession of Dublin, many of whom were brought closely into touch with him in his character of head of the principal fever hospital of the city. Further, it was his duty to give clinical instruction in fevers to the Dublin students. This he had done for the past 25 years, and there are several generations of students who must have been impressed by Day's clear clinical teaching and also have memories of his peculiar faculty for arriving at judgments without being able to communicate the reasons."

Outside his official work Dr. Day was particularly

interested in medical organisation, was for a number of years on the committee of the Irish Medical Association, and was for two years president. He took his recreation in hunting and farming, and had retired from active work for several years.

NORMAN BRAITHWAITE, M.B., B.S. Durh.

THE death occurred on June 7th of Dr. Norman Braithwaite, the son of the late Mr. T. W. Braithwaite of Bishop Auckland, as the result of a motor-car accident. Born in 1894 he graduated as M.B., B.S. Durh. in 1917. He was then house physician at the Royal Victoria Infirmary, Newcastle, and served also as assistant in the out-patient department of the Royal Infirmary, Edinburgh. During the war he held a commission as captain R.A.M.C. (T.F.) He afterwards practised at Deeping, while for a period he made several voyages as a ship's medical officer. Recently he acquired a practice at Brackley and on settling down there married. His wife was with him when the fatal collision occurred. He leaves a widow and a baby, and the domestic circumstances made his death particularly tragic.

PUBLIC HEALTH

Paratyphoid at Ipswich

AT the present time 32 members of the medical, nursing, and domestic staff of the East Suffolk and Ipswich Hospital are in the borough isolation hospital with paratyphoid fever. These include 2 resident medical officers, 1 sister, 18 nurses, and 11 maids. These cases were admitted in the middle of June, when 2 other persons who can be connected with the East Suffolk and Ipswich Hospital were also admitted. At the beginning of June 6 cases of paratyphoid were taken into the isolation hospital, but it has not been possible to establish any connexion between these and the later admissions. So far it has not been possible to find a carrier or other source of infection for the East Suffolk and Ipswich Hospital cases, but full investigations are being made in association with a medical officer from the Ministry of Health who is on the spot. We understand that no cases have occurred in the county of Suffolk apart from the Ipswich ones.

An Attack on Maternal Mortality

A striking reduction in the number of deaths from childbirth in the Rhondda Valley was reported by Sir Julien Cahn, as chairman of the National Birthday Trust Fund, at its annual meeting last week. The special campaign began eighteen months ago: in its first nine months there were 29 maternal deaths (over 3 per month), in the next three months there were 6 (2 per month), and in the first six months of this year there have been only 6 more (1 per month), while the number of non-fatal septic cases has fallen in proportion. This result Sir Julien attributed to the wholehearted coöperation and untiring zeal of all those connected with the work, and especially of Dr. J. D. Jenkins, until recently superintendent of maternity and child welfare. Every help and encouragement has been given by the local authorities of the area and their medical representatives, and two district sister superintendents have been spared by Queen Charlotte's Hospital to act as assistant inspectors of midwives under the Rhondda council. Nearly half the practising midwives in the area have now taken advantage of the offer made by the Fund to take free refresher courses at the Royal Infirmary, Cardiff. This has been made possible for them by the payment of compensation for cases lost during their absence. The grant of 15*s*. compensation to those midwives whose cases are referred to hospital, on the advice of the medical officer of the antenatal clinics, has apparently been instrumental in removing local opposition, and the attendance at the clinics have nearly doubled in the last few months. Two firms have generously supplied large quantities of disinfectant to the Fund, for use in the Rhondda area, without charge. Sir Julien added that as it appeared that malnutrition was a contributory factor in certain cases, special foodstuffs, recommended by the medical committee, have been made available to 210 mothers in the districts of the Rhondda and Llantrisant to the value of about 2*s*. 6*d*. per week per mother. "It is interesting to note that the sharp drop in the death-rate has occurred since the introduction of this scheme, which we are hoping to be able to continue until the end of the year. This was made possible by the successful result of Mrs. Stanley Baldwin's special Food Appeal."

The reports on the first year's efforts in the Rhondda Valley area have been so encouraging that the Fund has undertaken to continue the scheme for a second year. It is felt that light is being thrown upon the problem of high rates of maternal mortality, and that a successful outcome of the work undertaken in the Rhondda Valley will have far-reaching results.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 22ND, 1935

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1715; diphtheria, 847; enteric fever, 27; acute pneumonia (primary or influenzal), 702; puerperal fever, 36; puerperal pyrexia, 151; cerebro-spinal fever, 15; acute poliomyelitis, 6; encephalitis lethargica, 7; dysentery, 7; and ophthalmia neonatorum, 103. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 28th was 2800, which included: Scarlet fever, 810; diphtheria, 1051; measles, 50; whooping-cough, 379; puerperal fever, 27 mothers (plus 7 babies); encephalitis lethargica, 269; poliomyelitis, 1. At St. Margaret's Hospital there were 20 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there were no deaths from small-pox or enteric fever, 23 (0) from measles, 5 (0) from scarlet fever, 20 (4) from whooping-cough, 23 (4) from diphtheria, 35 (13) from diarrhœa and enteritis under two years, and 35 (8) from influenza. The figures in parentheses are those for London itself.

Liverpool reported 5 of the deaths from measles, and West Bromwich 3 of those from whooping-cough. Of the fatal cases of diphtheria 3 were in Birmingham. Diarrhœa and enteritis caused 3 deaths in Liverpool and 2 each in Hull and Newcastle-upon-Tyne. There were 4 deaths from influenza in Birmingham, 4 in Manchester, and 2 each in St. Helens and Stockport.

The number of stillbirths notified during the week was 292 (corresponding to a rate of 41 per 1000 total births), including 45 in London.

OVERCROWDING OF HOSPITAL WARDS.—The Royal Victoria Infirmary, Newcastle-on-Tyne, has decided to limit the number of beds in the wards, and in future the number for which the building is designed (614) will not be exceeded.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Specialist Medical Treatment and Local Authority Control

ON the motion for the second reading of the Hertfordshire County Council Bill in the House of Commons on June 26th,

Sir MURRAY SUETER said that Part IV of the Bill dealt with establishments for massage and special treatment. The object was to save the public from being imposed upon by spurious practitioners who were very active in connexion with electrical treatment. He (Sir M. Sueter) could give the House an example of electrical apparatus being in improper and ignorant hands. When he was in H.M.S. *Benbow* at Portsmouth they were experimenting with X ray apparatus, and they had a Röntgen ray tube and a fluorescent screen. They used to take photographs of the torpedo lieutenant's hands, and as they were experimenting one day they thought they would like to see what was in the doctor's brain. They put the Röntgen ray tube in front of the doctor's brain and examined it through the fluorescent screen. They saw that the tissue of the brain was different and they were delighted with the examination. But in the morning when the doctor was combing his hair it came out in handfuls: he was perfectly bald on one side. They had destroyed all his hair on that side. The doctor was rather annoyed, but fortunately in a few weeks' time it had grown again and all was well. That was an example of the danger of such electrical apparatus being in improper hands. The promotors of the Bill sought to have powers to deal with this matter.

Dr. O'DONOVAN said that the purpose of the Bill had his heartiest concurrence, but he thought that certain aspects dealt with in Part IV ought to be made public so that the Committee which would examine the Bill could see what his profession was thinking of this Private Bill legislation which was affecting professional work. Bills very similar to this had gone through Committee before, and this measure appeared in its present form largely because that was the form in which previous Private Bills had been passed by Private Bill Committees. If Clause 48 and the consequent Clauses of this measure became enshrined once more in an Act of Parliament without a variation of its wording men and women who practised massage, manicuring, chiropody, electric treatment, radiant heat treatment, light treatment and vapour or other bath treatment, would be compelled to notify the chief of police of their intention to practise these special branches of biophysical medicine. As Part IV stood without explanatory amplification he suggested that its imputations were offensive to a great body of useful people and bore no relation to the conditions under which they carried out their work to-day. He was entitled to say that, for since 1921 he had been a teacher, an examiner and a practitioner in this special part of medical treatment and he had not discovered that those whom he examined, those whom he taught, or those with whom he daily worked, were so undesirable that they should be subject to the attention of the county police.

Medical practitioners were given a certain freedom from the oppressive restrictions in Part IV, that was to say, it was not required that every medical practitioner should notify the police of his desire to practise special branches of medicine. But medical practitioners, perhaps London experts, who wished to practise in Hertfordshire any of these special branches of medicine, were required annually to produce from Hertfordshire practitioners a certificate that they were fit to carry out the special technique of their work. It would be a fair and appropriate observation to make that Hertfordshire, even in its county town, had not a panel of experts who were competent to certify as to the competence of experts who might go to practise there. It was strange that this county council should wish a certificate of special competence on the part of doctors who practised a very minor branch of medicine, and yet was not particular as to the special fitness of those who were to operate in more dangerous, more venturesome and more serious ways. Any practitioner in Hertford could deliver women in difficult labour without being required to prove his special competence to the Hertfordshire County Council, but should he install a mercury lamp or an X ray apparatus he became a suspected person who must year by year prove his fitness. Furthermore, nurses, specially trained and certified by the Chartered Society of Massage and Gymnastics, were to be under the same obligation of producing yearly certificates of their competence. Although a doctor or a specially certified massage nurse might become licensed in a simple way, nevertheless, the county council asked powers to pass by-laws instructing them how they should keep their records. Up to now a professional man had been entitled to keep his records and conduct his business in the way best suited to his personality, but this county council wished powers to pass by-laws so that his card index and professional records should be such as commended themselves to the council's advisers.

There was another point. The county council wished, properly or improperly, to set up a form of Medical Register of its own, for it not only asked those who practised these special forms of treatment to submit their technical qualifications, but it asked powers to set out in its own behalf what those qualifications should be. In other words, through this Bill and similar Bills there would be up and down England a multitude of minor quasi-responsible General Medical Councils. There were two incorporated societies of chiropodists in England who seriously taught their students, who trained them and examined them well, and granted them certificates, but the Hertfordshire County Council, without waiting for action at the hands of the Privy Council which was seeking to promote a Charter for the registration of chiropodists, would set up its own register of chiropodists; and then those who had successful boot shops and paid large rates could plant tame chiropodists in their back rooms and claim all the privileges of those who would benefit by registration at the hands of the Privy Council which could not be long delayed. That seemed to him to be a real wrong.

There was much professional feeling in this matter. They had heard from the member for Hertford (Sir M. Sueter) his experiences with X rays. Those experiences, inaccurately and wrongly reported, were nevertheless experienced at the hands of a registered medical practitioner, not at the hands of an undesirable person. Those experiments on a doctor's head, presumably with the doctor's consent and not under Admiralty orders, were carried out presumably by a registered medical practitioner. What ever dose of X rays the gallant Admiral gave to the doctor's hair that hair could not fall out the next day. It would take three weeks to fall out.

Sir M. SUETER: The next morning the doctor came down and told us that his hair had fallen out. When I said his hair grew again in a few weeks it may have been a few months, but it grew successfully and he did not have any bad effects afterwards, but it actually happened and I saw it. It was in the early days of X rays.

Dr. O'DONOVAN said he wondered if the gallant Admiral would take it from him that X rays in those days and X rays in these days would behave in exactly the same way. Their difference might be explained by the fact that when the Admiral was doing those experiments with X rays he (Dr. O'Donovan) was also doing them, but he had been doing them ever since, and the Admiral might be

a little behind current medical practice. Nevertheless, the fact remained that X rays were a dangerous weapon in the hand of inexperienced or unskilled operators, but this clause in the Bill did not exclude in any way the use of X rays by anybody. It excluded electrical treatment or other similar treatment, and he and his professional colleagues would be pleased to go into any court of law and give expert evidence that X ray treatment and radium treatment, which was even more dangerous, were in no proper and strict use of the word electrical treatment or similar treatment. Any argument founded on Sir M. Sueter's experience was only an argument that this definition clause should be re-drafted, that expert advice should be more widely sought in this work, and that a county council should not put itself in a lamb-like manner into the hands of those who were professional parliamentary draftsmen.

The Bill was read a second time.

Diseases of Animals Bill

In the House of Commons on June 26th Mr. ELLIOT, Minister for Agriculture, moved the second reading of the Diseases of Animals Bill, which has already passed through the House of Lords. He said that the main objects of the measure were first, to bring poultry within the provisions of the Diseases of Animals Acts, and second, to provide for the regulation of the manufacture and importation of certain therapeutic substances intended for veterinary purposes. The provisions under which they were now made and sold were very unsatisfactory and representations had been made to the Ministry for some time by agricultural interests. A standard for one of these substances was recommended by the Cattle Diseases Committee of the Economic Advisory Council. The Bill would go to Committee where there would be full opportunity for examining it in detail.

Mr. T. WILLIAMS said that the Labour Opposition offered no objection to this Bill; they thought it was very useful.

The Bill was read a second time and committed to a Standing Committee.

Health Services and Housing in Scotland

On Friday, June 28th, the House of Commons went into Committee of Supply on the Scottish Estimates. Captain BOURNE, Deputy Chairman of Committee, was in the chair. On a vote for £2,062,724, to complete the sum necessary to defray the charge for salaries and expenses of the Department of Health for Scotland, Mr. SKELTON, Under Secretary of State, pointed out that the health of the nation had never been so good, improvement being manifested in every direction save maternal mortality, where there had been a slight rise compared with last year, although it was about the same as the average of the last five years. A report on maternal mortality which had long been subject to anxious examination by experts, would, he said, be published in a few days, and was of a more intensive and exhaustive character than any previous examination of the question in either England or Scotland.

The Public Health Services Committee, which was appointed last year by the Secretary for Scotland, was carrying on its work with great energy and vigour, although he regretted to say that the chairman, Sir John Dove-Wilson, unfortunately died quite recently. He had been succeeded by one who would, he thought, command respect and approval in every section of the community, namely, Prof. Cathcart of Glasgow.

Dealing with the progress of housing Mr. Skelton said that the number of houses completed in 1933 numbered 20,915, but then, of course, subsidies to private enterprise were still going strong and there was not the same concentration on slum clearance. Of that figure of 20,915 houses 15,000 were local authority houses, and the balance were private enterprise houses. Last year the total was 18,417, 14,700 being local authority houses and 3,600 private enterprise houses. The most recent figures of completions showed that they were again increasing the numbers. In the first five months of 1934 6056 houses were completed, and in the first five months of this year 6,500, an increase of practically 500. On a rough estimate he believed that the local authorities completions, which were 14,719 for last year, might be in the neighbourhood of 17,000 for next year. They had this year the highest number of local authority houses under construction that there had ever been. At the end of May this year there were 18,119 local authority houses under construction, whereas in May last year there were only 14,488, and in the year before 17,035. Most striking of all was the progress of slum clearance under the present five-year plan, which began on Jan. 1st, 1934. The local authorities estimated their needs over the period to be 61,316 houses. The actual further building programmes submitted provided for 47,900 houses, or 78 per cent. of the total. Many of the local authorities had undertaken that if it was possible they would increase their programmes to such an extent that 92 per cent. of the needs would be undertaken in the five years. Mr. Skelton concluded by giving the figures dealing with the tenders for new houses which proved the skill and energy with which Scottish Local Authorities as a whole had undertaken the work dealing with the slums.

At the middle of June, 17½ months after the beginning of the five-year plan, tenders had been approved for 30,681 houses out of the 47,900, and of the 30,000 odd tenders approved only 6000 represented houses which had not been either begun or completed. That showed the zeal and energy with which the Scottish local authorities as a whole had undertaken the work of dealing with slums in the course of this new period. The momentum with which slum clearance was being tackled showed no signs of slackening. No tenders were being approved for two-room houses, and a very considerable proportion of the tenders were for four-room and some for five-room houses. Under the provision in the Rural Workers Act the reconditioning of farm cottages went steadily on. In the vast majority of cases of people removed from slums there was immediate and strong response to the improved conditions. It was also true that in the sphere of health the population of Scotland was increasingly responsive to the efforts that were made by public health authorities. Maternity and child welfare centres were constantly increasing in popularity.

Sir A. SINCLAIR said that they were glad to know that, broadly speaking, the health of the people of Scotland was good and was improving, but it still remained true, as was pointed out in the annual report of the Department of Health, that the public demand for hospital treatment was increasing. Unfortunately this demand was not being met. In regard to hospital services the report said:

> "Recently a study was made of the records of a large number of consecutive patients admitted to the medical wards of one of the best of our general hospitals. It was found that many of them had been ill for months or years prior to admission. Pressure on bed accommodation was so great that the duration of in-patient treatment had to be kept as short as possible. Only 26 per cent. of the patients reviewed remained in hospital for more than one month, and only two per cent. for more than three months. It is not surprising, therefore, that on discharge from the hospital more patients were classified as 'relieved' than as 'cured'." The report added: "It is impossible to regard such results with equanimity."

This was a serious matter and it was impossible to regard the condition of the hospitals in Scotland with equanimity. He would ask the Government to state what they were doing to remedy the state of affairs. A doctor who had returned after a number of years in the Malay States to take up an appointment in Scotland recently, told him that the hospital services in Scotland were inferior to those in the Malay States. He (Sir A. Sinclair) was incredulous, but this doctor's opinion was not inconsistent with

the stern and sombre warnings addressed to the local authorities in the report of the Department of Health. At the present moment there was no more serious need under the heading of public health in the Highlands of Scotland than an increase in the water-supply. He impressed on the Government the vital importance of that cardinal requirement.

Sir IAN MACPHERSON, in regard to the Highlands and Islands Medical Service, said that it was not economy and had not been the original intention to transport patients from the islands to a central hospital, while he disagreed with Sir A. Sinclair in regard to the superiority of hospitals in Malay over those in Scotland.

Sir CHARLES MACANDREW, on the question of maternal mortality in the report of the Department of Health, said:

"The total number of midwives enrolled by the Central Midwives Board for Scotland since the roll was established in 1915 up to the 31st March, 1934, was 11,002, of whom 7440 were enrolled after passing the Board's examination."

That perhaps might account for the rate of maternal mortality. It seemed extraordinary that over 3500 midwives who could not pass the examination should be on the roll. Midwives who could not pass the examination, but who were nevertheless on the roll, might do enormous damage to health in Scotland. Referring to venereal diseases the report said:

"In the absence of any system of notification the incidence of venereal diseases in the country is unknown."

It might be that legislation was required to make it notifiable. The report said:

"Infected mothers often show great anxiety for the health of their children and bring them willingly to the centres for observation, and for treatment if necessary. In one or two areas, also, infected parents have been persuaded to allow their children to be admitted to hospital for intensive observation."

Was it not possible to make it compulsory for doctors to notify these cases? Then there was the question of the teeth of the children. The dental staffs consisted of 48 whole-time and 35 part-time dentists, and the report said:

"It is very doubtful whether the existing dental staffs can adequately supervise the condition of the teeth of the children, especially since much of their time is occupied in attending to casual cases, that is, children suffering from tooth-ache whose teeth may be beyond saving."

If a little of the money which ought to be saved on other things could be devoted to the dental service it would be of great benefit to the children. It was most regrettable to learn that at this age the teeth of many children were beyond saving. Anyone who had had an opportunity of seeing the holiday camps must be aware that the sanitary conditions were anything but satisfactory. He suggested that it might be a desirable thing if some of the medical officers attached to territorial units were allowed to inspect these holiday camps because they had much more experience of camps than the officials of the Department of Health.

Mr. MAXTON said that he was interested to know that the number of persons who had to apply for poor relief per thousand of the population in Scotland in 1934 was precisely the same proportion as had to apply in 1867. That was rather a distressing figure. It showed that over a period of 70 years there had been no substantial change made in the ratio of very poor people to the total population. He also found that the cost in one district of maintaining the poor in poor-law institutions—the sick poor, the able-bodied poor, and the insane poor—fell as low as 5*s*. a week. That was an appalling figure. Above that figure of 5*s*. a week there were all sorts of variations. He was sure that for the money that it had cost to keep poor people in poor-law institutions in Scotland in general there could not be inside those institutions the amenities of life that were certainly made possible by the Scottish Poor Law Act which was recently passed. He hoped the Government would inquire whether the local authorities were in fact operating the new Poor Law Act in the way that he believed and hoped that it would be operated.

Dr. G. A. MORRISON raised the question of the reports of the medical officers of schools with reference to the large number of children who on coming to school were found to be suffering from easily remediable defects. The inspectors of the English Board of Education used this as one of the strongest arguments for the institution of more nursery schools, especially in the large cities. His wife, in connexion with her experience in a girls' club in Aberdeen, had been struck by the number of girls of 17 and 18 years who had very bad teeth, and in some cases almost no teeth at all. The gap between the time when boys and girls received skilled dental attention at school and the time when they were due to receive dental benefit from some approved society would be to some extent closed if there was an extension of the provision of dental attention to the junior instruction centres.

Mr. SKELTON, replying to points raised in the debate, said the question of the provision of hospitals, which had been mentioned by Sir A. Sinclair, was one on which the Government could not interfere with the local authorities. The 1929 Act increased facilities for proper hospital accommodation by making it easier for local authorities to combine for the purpose of hospital building and maintenance. He regretted to say that it had not always been taken advantage of, and while he agreed that progress had been slow, he did not propose to relax pressure on local authorities to get on with the work of hospital accommodation wherever it was insufficient. He entirely agreed with the observations in the report of the department that much required to be done before the matter could be regarded as satisfactory, and that would be borne out, he thought, by the maternal mortality report, but under existing legislation, apart from exerting pressure on local authorities, there were no substantive steps which the Secretary of State or he could take on this topic of the supply of hospitals. He could assure the committee that the Government would not forget the question of Highland water-supplies. In regard to the employment of unqualified midwives, it was not possible to apply the provisions of the last Act to persons who were midwives when the Act came into operation. The question of dental service again was primarily a matter for the local authorities. With regard to camps and their sanitation, local authorities already had considerable powers in making by-laws for the control of such camps.

Further discussion of the Note was adjourned.

Voluntary Hospitals (Paying Patients) Bill

The Voluntary Hospitals (Paying Patients) Bill and the St. Bartholomew's Hospital Bill were brought down from the House of Lords and read a first time in the House of Commons on Monday July 1st.

University of Durham Bill

In the House of Lords on Tuesday, July 2nd, the University of Durham Bill was read the third time and passed.

Housing (Scotland) Bill

The Housing (Scotland) Bill passed the Report stage in the House of Commons on Tuesday, July 2nd. The Public Health (Water and Sewerage) (Scotland) Bill and the Criminal Lunatics (Scotland) Bill were read a second time.

HOUSE OF COMMONS

THURSDAY, JUNE 27TH

Workmen's Compensation Inquiry

Mr. TOM SMITH asked the Home Secretary if he was in a position to make a statement with regard to the inquiry taking place into the working of the Workmen's Compensation Act.—Sir JOHN SIMON replied: A general

inquiry into every aspect of the working of the Workmen's Compensation Act would be a large undertaking, which would take up much time, but I have been considering whether there are not some specific questions which could be more speedily examined, and I hope it may be possible to make a statement on the subject very shortly.

Mr. SMITH: Will the right hon. gentleman keep in mind the specific question which was sent to his predecessor by the Miners' Federation of Great Britain relating to a legal decision with regard to miners' nystagmus?

Sir J. SIMON: One of the specific matters which I had in mind when I gave my answer was the case of miners' nystagmus.

Physical Training in Schools

Mr. HALL-CAINE asked the President of the Board of Education in what approximate proportion of primary and secondary schools, respectively, at the present time, physical training was carried out in special costumes as opposed to the ordinary clothes of the pupils; and in what proportion the physical training of boys was superintended by male instructors.—Mr. STANLEY replied: I regret that the information in my possession does not enable me to reply to the first part of the question. The provision of special costumes for physical training is encouraged by the Board and is becoming more general. I have no information as to the proportion of schools in which boys are taught by male instructors. In elementary schools the instruction is given by the class-teachers, who in the case of senior boys' departments would be men; in boys' secondary schools there is generally a male instructor on the staff.

Care of Deaf Persons

Mr. HUTCHISON asked the Minister of Health whether he proposed to introduce or give facilities for a Bill dealing with the disability of deafness; and whether he was satisfied with the adequacy of present arrangements for the care of such persons.—Sir KINGSLEY WOOD replied: I am not at present satisfied that special legislation on this subject is necessary. My hon. friend is no doubt aware of the report prepared by the late Dr. Eichholz on the condition of the deaf. That report did not recommend any further legislation, but advocated certain measures which were commended to local authorities in a circular issued by my department in May, 1933. The Ministry are continuing to impress on local authorities the importance of giving financial assistance, where necessary, to those voluntary agencies which are doing valuable work in finding suitable employment for deaf-and-dumb persons.

Mortgage of Insurance Medical Practices

Mr. LOGAN asked the Minister of Health if he was aware of the mortgaging and transfer of medical practices in connexion with panel patients controlled by financial houses; and if he was prepared to investigate this matter.—Sir KINGSLEY WOOD replied: My attention has been drawn to arrangements by which medical practitioners are able to obtain loans on the security of their income from insurance practice; but in the absence of specific evidence that these arrangements are exercising a prejudicial effect on the insurance service, I do not think this is a matter in which it would be proper for me to intervene.

Mr. LOGAN: Is the right hon. gentleman aware that I did send him a press cutting in which definite statements were made and will be make investigations into this matter?

Sir K. WOOD: It is difficult for me to begin to examine statements in the press. If the hon. Member has any particular facts of his own knowledge I shall be glad to have a talk with him about them.

Mr. RHYS DAVIES: Will the right hon. gentleman be good enough to look at the report sent to his predecessor by the Association of Insurance Committees on this subject?

Sir FRANCIS FREMANTLE: Is it not a fact that patients always have a choice of doctor and therefore they cannot be sold except from the point of view of goodwill and subject to the wish of the patients?

Cost of Milk to Hospitals

Mr. GRAHAM WHITE asked the Minister of Agriculture if any estimate had been made of the additional cost of milk to voluntary and other hospitals since the Milk Marketing Board was instituted; and if the Board and/or the Government proposed to take any action to relieve the hospitals of this additional burden.—Mr. ELLIOT replied: I would refer the hon. Member to the replies I gave on May 2nd, to which at the moment I have nothing to add.

Mr. T. WILLIAMS: Will the right hon. gentleman make representations to the Milk Marketing Board on the question of granting hospitals and such institutions treatment similar to that received by ice-cream vendors?

Mr. ELLIOT: It is difficult to suggest that a certain class of individuals should bear the loss on the supply to hospitals unless it is suggested by the people who supply hospitals.

Mr. WILLIAMS: Is the right hon. gentleman aware that the consumers and the producers as the case may be are really bearing a large loss on milk sold to ice-cream vendors?

No answer was given.

Child Labour in the Fields

Mr. BURNETT asked the Secretary of State for Scotland how many local authorities used the powers given to them under the Children and Young Persons (Scotland) Act, 1932, to restrict or prohibit child labour in the fields.—Mr. SKELTON, Under-Secretary of State for Scotland, replied: No education authority in Scotland has taken power by by-law, under the Act mentioned, to prohibit entirely the employment of children in agricultural pursuits. In five areas the statutory minimum age for employment of 12 years has been raised by by-law to 13 years for all employment, including agricultural work, though in one of these areas the higher age limit applies only to girls. Thirty-three of the 35 education authorities have made by-laws as to the employment of children, and in each case the by-laws include provisions for regulating the hours and conditions on which children may be employed.

MONDAY, JULY 1ST

National Health Insurance Appeal

Mr. LUNN asked the Minister of Health whether he would give the reason for the delay in not setting down for appeal to the High Court the case of Mrs. K. Slaughter, of 112, Brentwood-road, Romford, Essex, against the decision of the referee appointed under Section 90 of the National Health Insurance Act, 1924.—Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied: The Referee appointed under Section 90 of the National Health Insurance Act, 1924, acceded to the request of Mrs. Slaughter to state a case for the decision of the High Court on a question of law. There has been some unavoidable delay but my right hon. friend is informed that the terms of the case have now been settled and signed by the Referee and forwarded to Mrs. Slaughter's solicitors, who are, therefore, now in a position to set down the case for hearing.

Lung Trouble among Barytes Miners

Mr. DUCKWORTH asked the Secretary for Mines whether his attention had been drawn to the frequent occurrence of lung trouble among barytes miners and quarrymen in the Minsterley and Pontesbury district of Shropshire, and in particular to the death from silicosis of John Richards, of 9, Top-road, Pontesbury Hill, on May 21st; whether His Majesty's inspectors of mines had inspected and reported upon the conditions under which work was carried on; and whether he was satisfied that every possible precaution was being taken to safeguard the workers from this danger.—Captain CROOKSHANK replied: I have received no information of cases of industrial pulmonary disease in this district except at one barytes mine: and at this mine proper precautions are being taken following a thorough inspection of the conditions by H.M. Inspectors

of Mines. The case of John Richards has not previously been brought to my notice and I am having it investigated.

Accidents in the Building Trade

Mr. JOEL asked the Home Secretary whether any information had been laid before his department to show that accidents in the building trade were increasing; and whether insurance companies were now making exhaustive inquiries as to the cause.—Sir J. SIMON replied: If the figures for the last five years be compared there would not appear to be any material change in the proportion of accidents in this trade, and I am advised that the increase in 1934 over 1933 may be fully accounted for by increased building activity and by better reporting of accidents to the need for which the special attention of employers was recently drawn. It has, however, been recognised by my department for some time past that the situation calls for further inquiry and I have just appointed Mr. G. S. Taylor, Deputy Chief Inspector of Factories, specially assisted by three other inspectors, to make a report, after consultation with bodies concerned and after any necessary inquiries, reviewing the accident risks in the building industry and the precautions already adopted, whether by way of regulations or otherwise, with a view to advising as to what further measures may be desirable.

Infection of Workers Due to Paint Spraying

Mr. JOEL asked the Home Secretary if the information in his department showed that there was any increase in infection of workers due to paint spraying.—Sir JOHN SIMON replied: I have no information indicating any increase of illness from this cause.

Accidents Due to Electrical Apparatus in Private Houses

Mr. TEMPLE MORRIS asked the Home Secretary how many fatal accidents there were during 1934 from the use of electrical apparatus in private houses; and whether he was satisfied that existing legislation was sufficient to prevent the sale of articles which could not be used with safety by inexperienced persons.—Sir JOHN SIMON replied: Accidents from the use of electrical apparatus in domestic premises are not reportable to the Home Office, but fifteen fatal accidents of this kind came to the notice of the department during 1934. The law does not prohibit the sale of electrical appliances on the ground that they may be dangerous to inexperienced persons, but only a few instances have come to the notice of the department in which exception could reasonably be taken, on grounds of danger, to electrical apparatus placed on sale, and in such cases manufacturers generally have shown themselves ready to remedy the defects, when pointed out to them.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A course in urology will be given at the All Saints' Hospital from July 8th to 27th; it will occupy the afternoons and evenings with clinical and cystoscopic demonstrations. A week-end course in general medicine and surgery is to be held at the Southend General Hospital on July 13th and 14th, and an afternoon course in Dermatology at the Blackfriars Skin Hospital from the 15th to 27th. A panel of teachers who are prepared to give clinical instruction at their in-patient and out-patient clinics is preparedby the Fellowship. Particulars may be had from the Secretary at 1 Wimpole Street, London, W.1.

WESTMINSTER HOSPITAL.—On June 26th the Prince of Wales laid the foundation-stone of the nurses' home which is to be the first building of the new Westminster Hospital. As recounted in our issue of June 22nd, the new building is to be erected on the west side of St. John's Garden's, not far from Lambeth Bridge, and will accommodate 40 sisters, 200 nurses, 15 pupils undergoing preliminary training, and 50 domestic staff. It was announced that Mr. Myerstein has presented a cheque for £10,000 for the medical school building.

BRITISH POSTGRADUATE MEDICAL SCHOOL

THE FIRST REFRESHER COURSE

A COLLECTION of practitioners of different ages and widely varying experience assembled for the first intensive refresher course held at the British Postgraduate Medical School from June 17th to 29th, only a month after the school was formally opened. The staff of the school was supplemented on this occasion, and will be also in the future courses, by outside specialists, this time represented by Dr. C. W. Buckley, Dr. L. S. T. Burrell, Dr. E. Mapother, and Dr. J. A. Ryle. The sessions on each day were from 10.30 A.M. to 1 P.M., and 2 to 4.30 P.M., with fifteen minute intervals in the course of each morning and afternoon.

FIRST WEEK

Dr. F. R. Fraser, professor of medicine, welcomed the students with what was described by one of them as a "really refreshing preamble which justified the title of the course." He spoke sympathetically of their common experience of the many psychological problems which block the way to success in many cases which should be curable. The part played by psychic trauma in general structural disease is, he holds, a major one. The practitioner has it in his power to increase the health and happiness of mankind and to treat the individual (not the mass) to be better fitted for his environment. He must remember that the governing motive that takes the patient to the doctor is fear—fear in relation to his life or to his efficiency. It is prognosis that he wants, and this necessarily implies diagnosis, not merely anatomical diagnosis, but a realisation of the actual disease process and the stage it has reached. Prof. Fraser discussed the determination of the data involved and emphasised the value of history-taking as against mere physical examination. Whilst history-taking is subjective and symptomatic, physical examination is objective and structural. The majority of medical out-patients have no objective physical signs, but if they have it is criminal to miss them. The patient must be investigated as a biological entity in order to discover his environment, and the cause of his possible misfit in life. In the elaboration of this detective game questions on past health rather than on the more familiar past illnesses are important—e.g., "did you play games?" Two case-histories were detailed, one of a clergyman and the other of a girl clerk, to illustrate the importance of digging out the psychological basis of disease in spite of an apparently obvious anatomical diagnosis. Prof. Fraser doubted, rather wickedly, if Harley-street could live, given on the part of each medical practitioner the gift for good history-taking and a more highly developed faculty for using the eyes.

With these encouraging words, which established a friendly understanding, Prof. Fraser passed on to a demonstration of his own methods of physical examination on a variety of interesting cases.

In the afternoon Dr. Burrell followed with a rapid but fairly exhaustive survey of the main problems of pulmonary tuberculosis. Among the lessons to be drawn from his teaching were that in diagnosis symptoms are more reliable pointers than physical signs, which may be absent; that a differential leucocyte count and an estimation of erythrocyte sedimentation-rate may have prognostic significance;

and that senile tuberculosis is far more common than is generally believed. He discussed treatment at the stage of attack, at the stage of defence, and when the patient is discharged from a sanatorium, giving indications for and against the various modern surgical measures.

The next day was devoted to visits in the morning to the Central London Throat, Nose and Ear Hospital, and in the afternoon to the London School of Dermatology, St. John's Hospital for Diseases of the Skin.

Wednesday was given up to a symposium on gastric ulcer. Dr. Ryle started with a lecture on the natural history of peptic ulcer, the commonest organic cause of dyspepsia in males and a prominent cause of sick-wastage. Duodenal ulcer alone supplies 1 per cent. of admissions to a large general hospital. Many more are treated as out-patients, still others do not come to hospital, and many escape diagnosis. It is a disease with low mortality, but deaths in this country in 1930 are twice the numbers of those for 1920. Owing to lack of physical signs and other causes, diagnosis is commonly missed or delayed, and the spontaneously relapsing course of duodenal ulcer with long free periods is also a reason for missed diagnosis. In a long series of cases the average duration of a duodenal ulcer prior to diagnosis was seven years. The precise mode of causation remains obscure. The symptomatology of duodenal and gastric ulcer and their complications were discussed. Prognosis depends on age or stage of ulcer, age and occupation of patient, and presence or absence of complications. In assessing the choice and prospects of treatment length of history is especially valuable. The earlier the diagnosis the better the prospects of medical relief. After this lecture demonstrations were given of pathological specimens by Prof. E. H. Kettle, of patients by Dr. Ryle, and of the tests for occult blood in stools by Mr. E. J. King, D.Sc. After lunch Dr. Duncan White gave a lecture-demonstration on the place of radiology in the diagnosis and management of peptic ulcer, and Dr. Ryle discussed the functional dyspepsias and their differentiation from ulcer dyspepsia, and detailed the treatment of peptic ulcer with a demonstration of diets during the first month of treatment.

On Thursday morning Dr. Janet Vaughan explained the differential diagnosis and treatment of common types of anæmias. She classified the anæmias on an ætiological basis, detailed the essential hæmopoietic factors, and described the out-patient diagnosis of deficiency anæmias by a combination of clinical and laboratory methods. The fact that the response of deficiency anæmias to treatment is specific was emphasised and the possible presence of a dual deficiency in certain cases discussed. While iron must be given by the mouth, deficiency of the pernicious anæmia (P.A.) factor is most effectively and cheaply dealt with by parenteral therapy. In the afternoon Sir Frederick Banting lectured on the history of insulin and Prof. J. Young gave a demonstration of obstetrical cases.

On Friday Prof. Young, in the course of a lecture on antenatal examination, pointed out that 10 per cent. of maternal mortality is due to ante-partum hæmorrhage, and 18 per cent. of maternal mortality is, in normal cases, due to sepsis. Morning sickness might be attributable to night starvation. If it was very severe salines per rectum brought relief. In the afternoon Dr. Chassar Moir discussed some common gynæcological conditions, showing cases of prolapse and of dysmenorrhœa. He pointed out the importance of preventing a mother from being over-sympathetic with a girl suffering from dysmenorrhœa. In his experience glandular preparations had been of little help in such cases, but in severe cases of dysmenorrhœa unrelieved by other methods a presacral sympathectomy had proved successful.

On Saturday Dr. Mapother, speaking on psychiatry in general practice, showed cases to illustrate the association between arterio-sclerosis and mental disorder. He dealt also with the differential diagnosis of neurosis and psychosis, pointing out that in neurosis the patient is not detrimental to others and has insight into his condition.

SECOND WEEK

Prof. G. Grey Turner started the second week with a lecture on gastric carcinoma, its diagnosis and treatment. He emphasised the importance of repeated clinical examinations, test-meals, and examinations of vomit for blood. The mortality of gastrectomy was 10 per cent.; when there was probability of gastric carcinoma, the risk of abdominal exploration was less than the risk of delay. Prof. Grey Turner detailed the operative treatment and Dr. Duncan White demonstrated X rays of the condition.

In the afternoon Prof. Fraser lectured on heart disease and heart failure, its diagnosis, treatment, and prognosis. Tuesday was spent profitably at the Hospital for Sick Children, Great Ormond-street. On Wednesday Dr. Buckley lectured on chronic arthritis of the rheumatoid and osteo-arthritic types, showing the pathological, and, with Dr. White's help, the radiological features peculiar to each type, and in the afternoon spoke of the chronic rheumatic affections, notably sciatica (trunk, root, and referred); spondylitis (ankylosis and osteo-arthritic), and lumbago. On Thursday Dr. J. G. Scadding dealt with some common respiratory diseases, devoting most time to bronchiectasis and pulmonary suppuration and to asthma. In the afternoon Mr. Lambert Rogers, speaking on fractures, drew attention to a general simplification in methods of treatment. The multitude of splints formerly in use had disappeared and plaster-of-Paris was increasingly popular. There was also a decline in operative treatment, except in certain fractures, and a tendency towards longer periods of immobilisation. Next morning Mr. Lambert Rogers lectured on head injuries and in the afternoon Prof. Grey Turner gave an address on the diagnosis of acute abdominal conditions, showing how acute appendicitis in its different forms (without peritonitis, with local peritonitis, with flank or pelvic peritonitis or both, and with residual abscess,) could be differentiated from acute gall-bladder, perforation of gastric or duodenal ulcer, and intestinal obstruction. On the last day of the course a demonstration of local anæsthesia was given and the members of the class were given an opportunity for making critical and constructive suggestions on the requirements of a refresher course of this kind.

CONCLUSION

The first venture of this new school was accounted a real success. The brief impressions noted above were collected from various members of the class and are not a balanced summary of the salient features but an indication of the practical nature of the instruction provided. The course coincided with a spell of hot weather and arrangements had not yet been made for electric fans or other devices to mitigate the heat in the lecture theatres. The disadvantage of having these in close proximity to the hospital was sometimes apparent, since noises from the out-patient department and from patients' friends on visiting days were occasionally disconcerting

On the other hand, the fittings of the demonstration theatre, the excellent epidiascope, and the arrangement whereby the lecturer can communicate by microphone with the technician outside the theatre who is showing his slides were most convenient. The school has made a good start with these short pithy courses. We understand that the later ones to be held from July 15th to 27th, Sept. 16th to 28th, and Nov. 18th to 29th have been planned on much the same lines.

MEDICAL NEWS

University of Oxford

At recent examinations the following candidates were successful :—

Materia Medica and Pharmacology.—E. J. S. Barthorpe, R. Billig, R. G. Blackledge, L. B. Bok, J. F. Bourdillon, T. N. Branch, R. C. Browne, F. G. Ethiraj, A. W. Frankland, T. Gadian, W. M. Gibson, S. R. Gloyne, N. J. S. Gurney, J. C. Hewetson, J. R. Hollick, R. M. Hugo, A. M. L. Isabella, E. L. James, P. R. W. Leigh, J. N. Mills, R. G. W. Ollerenshaw, H. G. O. Owen-Smith, J. A. Partridge, C. W. R. Rayne-Davis, I. F. Rose, T. B. Snell, N. E. Stidolph, S. F. Taylor, G. J. Walley, J. Walter, C. M. F. Walters, D. Whitteridge, W. Wynne Willson, and W. B. Young.

Pathology.—W. D. Brinton, R. C. Browne, W. W. Coppinger, P. S. Edgecombe, A. F. Foster-Carter, D. B. Fraser, W. E. Gibb, S. R. Gloyne, C. F. Hamilton-Turner, G. F. C. Hawkins, J. C. Hewetson, J. H. Lewis, N. H. Martin, H. Muller, C. I. Murphie, T. E. Ooi, H. M. Sinclair, D. H. Swayne, R. Y. Taylor, A. L. Watson, and A. L. Young.

Forensic Medicine and Public Health.—P. C. Alexander, W. J. C. Anstie, D. R. Balcombe-Brown, P. S. Buckley, M. C. Chapman, H. N. Davis, H. Fidler, W. E. Henley, G. A. Hodgson, J. R. Hollick, J. F. Loutit, W. P. Mallinson, A. P. Meiklejohn, R. Passmore, F. R. P. Pepper, H. Rees, and F. G. Ward.

Medicine, Surgery, and Midwifery.—W. J. C. Anstie, N. E. R. Archer, R. Bevan, P. G. Burgess, H. Burton, M. C. Chapman, C. D. Coode, P. E. Cresswell, K. B. Dawson, C. F. Hamilton-Turner, W. E. Henley, D. H. Hertz, J. R. Hollick, C. Hollins, N. Leitch, A. P. Meiklejohn, D. F. G. Moir, J. C. Penton, T. W. H. Porter, K. C. Royes, W. R. Trotter, and J. W. A. Turner.

University of Cambridge

On June 22nd the following degrees were conferred :—

M.D.—R. A. Ratcliff and F. J. Wright.
M.Chir.—R. J. V. Battle.
M.B. and B.Chir.—C. J. G. White.
M.B.—W. H. Gabb.
B.Chir.—W. S. Haynes.

University of Durham

On June 27th the honorary degree of doctor of civil law was conferred on Prof. Thomas Beattie and the honorary degree of doctor of surgery (D.Ch.) on Prof. G. Grey Turner. Ordinary degrees and diplomas were conferred as follows :

M.D.—E. Browell, G. Davison, W. Foskett, J. J. H. Lowe, F. McGuckin, G. M. Miller, J. A. Stobbs, F. H. Taylor.
M.D.S.—A. D. Hitchin.
M.B. and B.S.—B. M. Axton, C. Bainbridge, H. H. S. Brown, J. Cleminson, T. A. Cockburn, W. Cowell, R. J. Crompton, H. R. Dewar, A. K. Dougall, W. Dunn, H. Fabricant, J. F. Fraser, V. E. Gillis, N. D. Gofton, W. F. Hall, J. G. H. Harbinson, T. E. Henderson, J. R. Heslop, N. Q. Hesse, T. F. Hird, A. S. Jarman, H. L. Jenkins, D. C. Morris, A. H. G. Munro, L. H. Murray, A. E. Paxton, D. Reemer, K. D. Rosner, R. J. Rutherford, M. Salpeter, G. H. Scott, J. N. Swainston, J. Swinney, J. V. Todd, H. Weiss, G. H. Whalley, and S. Woolf.
B.Hy.—J. Angus, D. S. Buchanan, and N. V. Hepple.
D.P.H.—J. Angus, D. S. Buchanan, and N. V. Hepple.
L.D.S.—L. R. Bowlby, A. S. Douglas, R. M. Stephenson, and C. J. Thubron.

University of Glasgow

Mr. John Adam Gib Burton has been appointed to succeed Prof. Peter Paterson in the St. Mungo chair of surgery in the university.

Mr. Burton, who is surgeon to the Glasgow Royal Infirmary, graduated at Glasgow in 1909, and saw active service during the late war in France, Gallipoli, and Mesopotamia, receiving the Military Cross. He was formerly lecturer in pathology, but subsequently became Prof. Paterson's senior assistant, and is at present hon. lecturer in clinical surgery in the university.

On June 28th the following degrees were conferred :—

D.Sc.—Tudor Jenkyn Jones, M.B.
M.D.—John Wyllie (with high commendation), J. L. Dunlop (with commendation), and A. F. R. Dewar (in absentia).

A Congress on Gout

From Sept. 14th to 16th a conference will be held at Vittel, in France, on the subject of gout and uric acid. Those taking part will include Prof. Loeper, Prof. Fiessinger, Prof. Rathery, Prof. Marcel Labbé, Prof. Villaret, Prof. Étienne, Prof. Santenoise, Dr. M. P. Weil, Prof. Pasteur-Vallery-Radot, and Dr. A. P. Cawadias. The foreign committee includes (in this country) Dr. Cawadias and Sir William Willcox. Particulars may be had from Dr. M. Boigey, secrétaire général du Congrès de la Goutte, Vittel, Vosges.

University of Edinburgh

On June 28th the honorary degree of doctor of laws was conferred on Surg. Commander J. D. Pollock.

The degree of Ph.D. was also conferred on Dr. Munir El Gazayerli.

University of St. Andrews

The honorary degree of LL.D. has been conferred on Dr. C. H. Browning, F.R.S., Gardiner professor of bacteriology in the University of Glasgow, and Sir John Boyd Orr, M.D., F.R.S., director of the Rowett Institute for Research in Animal Nutrition, Aberdeen.

Middlesex Hospital Medical School

The council of the Middlesex Hospital medical school has decided to celebrate the hundredth anniversary of the foundation of the medical school on Wednesday, July 24th. In the afternoon the prizes and medals won during the session 1934–35 will be presented to students by the Chancellor of the University of London, and on the same date there will be a scientific evening. Both ceremonies will be held at the Middlesex Hospital. The students' centenary ball will take place at the Dorchester Hotel on the evening of July 25th. The "refresher course" and annual dinner will be held as usual during the last few days of September and early in October respectively.

Tribute to Mr. Webb-Johnson

On June 27th Mr. A. E. Webb-Johnson, F.R.C.S., surgeon to the Middlesex Hospital, was entertained to dinner at Claridges Hotel by members of the hospital board, medical staff, and medical school. The dinner was given on the completion of the new Middlesex Hospital, to show appreciation of Mr. Webb-Johnson's work during the past ten years. He has been chairman of the plans committee from the beginning and has, it is stated, been responsible, directly and indirectly, for raising £500,000 of the £1,250,000 which the scheme has cost.

Metropolitan Water Board

Dr. Donald Craig Norris, F.R.C.S., deputy medical officer of the Bank of England, has been appointed chief medical officer of the Metropolitan Water Board in succession to the late Sir John Collie.

Hertford Hospital, Paris

An English resident in Paris has offered to give £1360 towards the special fund for alterations and additions to this hospital, provided three others will give the same. It was founded and endowed by Sir Richard Wallace for the treatment of poor British subjects and was opened in 1879. Until 1920 nobody was asked to contribute to the funds, but the drop in the exchange value has made it necessary to appeal for help.

Hospital of St. John of Jerusalem

The King has sanctioned the following promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem :—Knights of Grace : Lt. Col. Sir Louis E. Barnett, Dr. I. G. Modlin, Major J. Orton. Commanders : Dr. W. G. Rogers, Surg. Lt.-Col. E. J. H. Luxmoore, Lt.-Col. G. E. Peacock, S. S. Pringle, P.R.C.S.I., Dr. Ian Fraser. Officers : Dr. C. H. Perram, Dr. H. L. Garson, Dr. H. R. Richard, Dr. O. G. Ingham, Dr. H. F. Munro, Dr. W. O. Gliddon, Dr. W. C. Winfrey, Dr. J. J. Danby, Dr. D. Samuel (since decd.), Major S. R. Gibbs, R. V. de A. Redwood, Col. C. R. White, Mrs. J. W. MacInnes, M.B. Serving Brothers : Dr. L. H. Wharton, Major S. Copley, Dr. C. H. Upham, Dr. P. C. Davie, Dr. A. E. A. Palmer, Dr. H. Riddell, Capt. R. H. Hadfield, Col. H. H. E. Russell, Dr. O. H. Hudson, Dr. A. J. Hopper, Dr. W. A. Jones, Dr. S. C. Bettencourt-Gomes, Dr. F. F. A. Ulrich, Dr. J. A. Carman, Dr. J. E. Brereton, Dr. H. B. Pierce.

British Social Hygiene Council

The seventh Imperial Social Hygiene Congress, under the ægis of various Government departments, will be held at the London School of Hygiene and Tropical Medicine on July 8th–12th. The Congress has been organised by the British Social Hygiene Council. Delegates, including many from overseas countries of the Empire, will be welcomed by the Earl of Plymouth, Sir Basil Blackett (president of the Congress), Sir Edward Grigg, and the High Commissioners of Australia, India, the Irish Free State, New Zealand and Southern Rhodesia.

Among matters to be discussed are: Domestic Relations and Matrimonial Cases; the Traffic in Women; the Juvenile Delinquent; Parents and Biology Teaching; Biology Teaching to Boys and Girls; Effects of Biology Teaching in the Colonies. A Conference on the Welfare of the Mercantile Marine will be held on the afternoon of Monday, July 8th.

Mental Hospitals Association

The seventeenth annual meeting of this association will be held at the Guildhall, London, on Wednesday next, July 10th, at 11 A.M.

Extensions at Mile End Hospital

A new out-patients' department and the balconies to the female ward block were opened last week at Mile End Hospital by Mr. Dan Frankel. The new balconies will take ten beds on each floor and have been fitted with the folding type of steel window.

Nottingham General Clinic

A fracture clinic is to be established at this hospital in order to control, unify, and continue the out-patient treatment of all fracture cases and follow its results. The sum of £36,750 has been received towards the £50,000 required for the erection of this wing.

Births, Marriages, and Deaths

BIRTHS

BRAYBROOKE.—On June 25th, at Tetbury, the wife of M. K. Braybrooke, M.R.C.S. Eng., of a son.

BUIST.—On June 27th, at Glasgow, the wife of Major T. P. Buist, M.B., Ch.B. St. And., R.A.M.C., of a daughter.

CHANDLER.—On June 26th, at Sunningdale, the wife of G. P. Chandler, M.D. Camb., of a daughter.

FOX.—On July 1st, at Hampstead, to Margaret and T. F. Fox—a son.

FRESHMAN.—On June 30th, at Welbeck-street, W., the wife of Edgar Freshman, F.R.C.S., of a daughter.

LEARMONT.—On June 19th, at Hovingham, York, the wife of Alan A. Learmont, M.B., Ch.B. Edin., of a son.

NEWBERY.—On June 21st, at Royal Naval Hospital, Haslar, the wife of Surgeon Lt.-Commdr. D. A. Newbery, R.N., of a daughter.

ORMEROD.—On June 21st, at Woodford Green, the wife of Thomas L. Ormerod, M.B., B.Ch. Oxon., of a daughter.

PILCHER.—On June 22nd, at Boston, Lincs, the wife of Richard Pilcher, F.R.C.S. Edin., of a daughter.

ROCHE.—On June 23rd, at Knaresborough-place, S.W., the wife of Alex. E. Roche, M.D. Camb., F.R.C.S. Eng., of a son.

ROSS.—On May 31st, at Ranikhet, India, the wife of Captain W. A. R. Ross, M.B., Ch.B. Edin., R.A.M.C., of a son.

SCHOLEFIELD.—On June 22nd, at Hereford, the wife of Bernard Scholefield, M.D. Oxon., F.R.C.S. Eng., of a daughter.

SEWELL.—On June 25th, at Sutton Scotney, Hants, the wife of Capt. E. M. Sewell, M.B., Ch.B. Edin., I.M.S., of a son.

MARRIAGES

CORCORAN—HAY.—On June 29th, at the Church of St. Joseph, Bedford, Capt. Thomas Martin Corcoran, M.R.C.S. Eng., R.A.M.C., to Elizabeth Maud, daughter of Col. W. N. Hay, C.I.E., D.S.O., and Mrs. Hay, of Bedford.

FARQUHARSON—HALLAM.—On June 21st, at St. Mary Abbots Church, Kensington, David A. Farquharson, M.B., C.M. Edin., F.R.F.P.S. Glas., D.P.H., late of Darjeeling, to Agnes Mary, only daughter of the late Mr. Henry Hallam, of Nottingham.

DEATHS

CLEMINSON.—On June 30th, at North Ferriby, Florence Stacey Cleminson, J.P., M.B., B.S.

GELLATLY.—On June 30th, at Cambridge, Jessie Handyside Gellatly, M.D., D.P.H. Edin., aged 52.

HEARDER.—On June 23rd, at Dinas Powis, Frederic Pollington Hearder, M.D. Edin., aged 62.

KITCHIN.—On June 28th, at Canford Cliffs, Bournemouth, Ernest Hugh Kitchin, M.B., B.Chir. Camb., aged 60.

MCALLUM.—On June 22nd, at Inglewood, New Zealand, Harold Guthrie McAllum, M.B., B.S. Durh., fifth son of the late Charles Octavius McAllum, of Newcastle-on-Tyne, aged 62.

MORTON.—On June 27th, at Lavender-gardens, S.W., Thomas Mahon Morton, L.R.C.P.I., L.R.C.S.I., aged 69.

RIDDELL.—On June 29th, at Beechwood, Bearsden, James Robertson Riddell, F.R.F.P.S. Glasg.

SCOTT.—On June 28th, at Charmouth, Dorset, Geoffery Easton Scott, B.M., B.Ch. Oxon., M.R.C.S. Eng., aged 26.

SMITH.—On June 28th, at Leatherhead, suddenly, Harry Edward Smith, M.B., B.Chir. Camb.

SUCKLING.—On the 30th ult., at "Beech Lawn," Edgbaston, Birmingham, Cornelius William, M.D., London, aged 80 years. Interred at Sutton Coldfield Cemetery, July 3rd.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Appointments

BROWN, W. PATERSON, M.B. Glasg., D.P.M., has been appointed Medical Director of the North Western Child Guidance Clinic, London.

DUFF, KEITH, F.R.C.S. Eng., M.C.O.G., Gynæcologist to the Dreadnought Hospital, Greenwich.

HILL, I. G. W., M.B., F.R.C.P. Edin., Clinical Tutor, Aberdeen Royal Infirmary.

LAMB, W. L., M.B., F.R.C.P. Edin., Clinical Tutor, Aberdeen Royal Infirmary.

MCNAIR, J. S., M.B. Glasg., Medical Superintendent of the Hospital for Tropical Diseases, London.

MORGAN, T. N., M.D. Aberd., Clinical Tutor, Aberdeen Royal Infirmary.

MORTON, H. S., M.B. Lond., F.R.C.S., First Assistant in the Gynæcological and Obstetric Department, London Hospital.

Certifying Surgeon under the Factory and Workshop Acts: Dr. J. D. Jones (Llanberis, Caernarvon).

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

SOCIETY FOR THE STUDY OF INEBRIETY.
TUESDAY, July 9th.—4 P.M. (11, Chandos-street, W.), Dr. William Brown: Psychology in Relation to Alcohol and Drug Addiction (Presidential Address). Dr. S. W. Patterson: Addiction to Endocrine Gland Extracts.

PADDINGTON MEDICAL SOCIETY.
TUESDAY, July 9th.—9 P.M. (at Great Western Royal Hotel, Paddington, W.), Dr. Alfred Welply: The Medical Practitioners' Union and the Trades Union Congress.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.
FRIDAY, July 12th.—5.15 P.M. (at West London Hospital), Annual General Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, July 8th, to SATURDAY.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. All-day course in medicine, surgery, and the specialties.—ALL SAINTS' HOSPITAL, Austral-street, West-square, S.E. Afternoon and evening course in urology.—SOUTHEND GENERAL HOSPITAL, Southend. Week-end course in general medicine and surgery (July 13th and 14th).—Courses and clinics are open only to members and associates of the Fellowship.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, July 11th.—2 P.M., Dr. R. W. B. Ellis: Chronic Chest Disease. 3 P.M., Dr. D. Nabarro: Clinical Pathology in Pædiatric Practice (Demonstration).
Out-patient clinics: mornings, 10–12 noon. Ward visits: afternoons, 2–3.30 P.M. (except Wednesday).

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
WEDNESDAY, July 10th.—5 P.M. (1, Wimpole-street, W.), Dr. Paul Dudley White: Congestion without Myocardial Failure (St. Cyres Lecture).

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel-street, W.C.
TUESDAY, July 9th, and WEDNESDAY.—Conference for Medical Officers in Industry from the Tropics.

BRITISH ASSOCIATION OF RADIOLOGISTS.
SATURDAY, July 13th, and SUNDAY.—Congress in Birmingham.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, July 10th.—4 P.M. (St. James' Hospital, Ouseley-road, Balham, S.W.), Dr. W. G. Barnard: Pathological Demonstration.

BRITISH SOCIAL HYGIENE COUNCIL.
MONDAY, July 8th, to FRIDAY.—Imperial Congress at London School of Hygiene and Tropical Medicine, Keppel-street, W.C.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, July 29th.—3.30 P.M. (General Hospital), Mr. Cyril Raison: Abdominal Emergencies.

NOTES, COMMENTS, AND ABSTRACTS

LIFE AND LEISURE

THE ninth and final volume of the New Survey of London Life and Labour has now appeared.[1] The survey has occupied seven years, having been set on foot in 1928 on the initiative of the London School of Economics, with the assistance of grants from various bodies. The object was to follow the general scheme and methods of Charles Booth's inquiry, the results of which were published between 1889 and 1903, with such changes as are necessitated by alteration of circumstances and the development of new sources of knowledge. The endeavour has been to present a comprehensive record of social and economic conditions in London to-day, and a comparison with thirty or forty years ago.

The previous volumes have been principally concerned with the material conditions of the London worker's life and livelihood. The present volume deals with the pursuits of his leisure.

It is estimated that the average London worker's daily hours of labour when fully employed are now shorter than those prevailing 40 or 50 years ago by about an hour—rather more than an hour in the case of the unskilled labourer and rather less in that of the skilled artisan, and that the average worker in London has an increased margin of income above that which is absorbed by bare necessities.

The survey begins with a description of London popular amusements and entertainments, sports, hobbies, holidays, and outings—i.e., the full range of leisure pursuits which are primarily concerned with healthy enjoyment and recreation, rather than with self-improvement on the one hand or mere indulgence on the other. A distinction is drawn between cultural and non-cultural pursuits, and also between the active and passive types of amusement. It is found that the changes that have taken place in the amusements and recreation of the people have, generally speaking, affected the passive type of amusements much more profoundly than those of the active type. The progress of mechanisation of passive forms of entertainment, typified by the growth of the cinema and of broadcasting, is traced and an endeavour made to estimate their immediate and remote effects on the pursuits of leisure as a whole.

It is shown that in the main the cinema has created and supplied an entirely new demand, and that this is even more emphatically true of broadcasting. Forty years ago the part of working-class leisure now filled by the cinema was either non-existent or was to a large extent passed idly at the public-house, club, or street corner; and the change has been for the good even though the great educational possibilities of the films have so far been very imperfectly attained.

The second part of the survey deals with social organisations, the primary object of which is the better and more enjoyable use of leisure. The first chapter is concerned with workmen's clubs and there follow chapters dealing with social organisations for boys and girls. The critical importance of the period of adolescence, to the appreciation of which medical men are always trying to educate the public, appears clearly from the study of the various forms of social delinquency and evil habits which are surveyed in the third part of the volume. One of the main lessons of these inquiries into excessive drinking, gambling, sex-delinquency, and crime is that the root cause of these social maladies, in so far as they can be ascribed to environment is the absence or weakness of healthy interests.

The third part of the volume contains the results of careful investigations of some of the principal aspects of these social maladies. The survey of the drink problem is largely based on information obtained by visits to over 600 public-houses. The chapters on drink and gambling emphasise the concurrent decline of the former and the increase of the latter habit since the time of Charles Booth's survey.

One conclusion reached is that since drinking at the public-house is to a large extent an incident of social intercourse, "better accommodation and comfort tend to slow down the rate of drinking and therefore are to the public interest, though not perhaps to that of the brewers, whose object is rapid turnover, and who believe that this is favoured by 'perpendicular drinking'". The chapter on sex-delinquency includes a survey of the sources and predisposing causes, and also of methods of repression and prevention. The survey shows the change of character in sex-delinquency. Reason is given for the belief that at present there are not now more than 3,000 professional prostitutes plying their trade in the London areas, mainly in the regions near the main railway stations or docks where strangers and seafarers abound.

Since the war there has been an increase in the proportion of girls who indulge in "sex adventure" of a non-commercial nature, especially in the middle rather than in the working classes, but on the whole relationships between young people of different sexes are deemed healthier and more natural than they were twenty or thirty years ago. Among environmental conditions favourable to sex-delinquency the broken and undisciplined home is found to be the most important single factor..

For the chapter on crime a special analysis has been made by the courtesy of the commissioner of metropolitan police, of the dossiers of "first offenders" in 1927, so as to trace how far they have again been found guilty of offences during the subsequent five years. The broad result is to show that in the London area more than four-fifths of the male first offenders of 1927 were not again found guilty in the following five years. The age analysis discloses that it is the younger offenders who are most likely to be re-convicted. Of the minority who were again found guilty more than half re-appeared only once, but there was a small core of persistent offenders (about one per cent. of the total number of first offenders) who were re-convicted five times or more.

The fourth part of the volume consists of a set of original descriptions of the life of working-class families as seen from the inside, from the pens of the actual breadwinners or housewives.

The results of the survey will confirm the general impression of the direction of movement during the last half century. It provides ample scope for speculation on the whole question of leisure, its uses and abuses, which will clearly engross the attention of future generations.

The variety of organisations by means of which the Londoner may beguile his hours of freedom from work varies from the University Extension Courses to the gossip of the public-house; and follow him inexorably from the day-nursery into which his mother deposits him while she goes to work, to the men's institutes to which he can repair in his ripe years.

We cannot doubt that on the whole the movement has been to the good. But there is another side to the picture. It is suggested in this work that the decrease in drunkenness is of value to the community, not only for obvious reasons but also because drink is "undeniably an anodyne." Is it not equally true that for the person who must always be searching for amusement, who can never be alone, amusement surely represents merely a soporific and he is as much fleeing from reality as his grandfather did in the bar of a public-house?

Another unsatisfactory feature brought out is the enormous relative growth of "passive" amusements;

[1] The New Survey of London Life and Labour. Vol. IX. Life and Leisure. Director: Sir Hubert Llewellyn Smith, G.C.B. London: P. G. King & Son, Ltd. 1935. Pp. 445. 17*s.* 6*d.*

those which are presented ready prepared and predigested, requiring no intellectual or physical activity; the cinemas which, we are told, are capable of seating 1,000,000 per day, having sprung from nothing in the last 40 years; the greyhound racing courses, all started within the last fifteen years, and which now number 12 within the London area and whose total attendance in 1932 was ever 9,000,000.

The growth of passive amusements is out of all proportion to those which require active participation. Thus the cinemas seating capacity and the gate attendances quoted above may be contrasted with the increase in players of games on the grounds provided by the L.C.C.; (the figures given refer to the number of applicants to play respectively in 1926 and 1933), cricket 1078, against 1005, no increase; football 911, against 1006, less than 100 increase; or with the increase in the borrowers from public libraries in the County of London, which is estimated at 156 per 1,000. The increasing desire to take the easy mechanical path of collecting amusement or information, the latter especially from the B.B.C., in preference to the active cultivation of either hand or brain is certainly disturbing.

Finally, it is clear that there is an immense emphasis to-day upon "the herd." More and more do people do things together in crowds and there seems to be more in this than fortuitous circumstance; it is essentially a flight from the individual, from personal responsibility, and the need to think. It is true that the scout and guide movements and the working men's club and institute union, have seen the danger of this tendency and try to encourage individual activity and responsibility within the group. It is true also that there has been development in such individual hobbies as gardening, bird fancying, photography, and the like, yet the balance is strongly on the other side. The frequency of groups of hikers as compared with the solitary tramper, the masses of cyclists with their club badges, the vision of the pier at Brighton or the beach at Southend, all bear their noisy testimony to this fact. It is immensely desirable that people should have holidays and that they should escape from the dust and noise of London, but a very large percentage of the benefit is lost in the clamour of the crowds. It would seem that our amusements are tending to become as mechanical as our work, and though the craftsman has become irretrievably lost in the whir of the machine, surely it becomes the more important that his leisure hours should not be absorbed mainly or only in the merry-go-round of Hampstead Heath. Socialisation has helped much to improve the lot of the working man; nevertheless the world's best work has come from the solitary, and we need to see that we do not swamp all individual effort by our host of organisations.

INSTRUMENTS OLD AND NEW

SOME interesting additions have been made to the historical section and the collection of surgical instruments in the museum of the Royal College of Surgeons of England during the past twelve months, and among them are a number of Roman bronze instruments, found in London dating from the first century, which have been presented by Dr. Mervyn Gordon, F.R.S.

Some of the specimens, used for medical, toilet, and other purposes, were recovered from the bed of the Walbrook and others were found in the mud of the Thames, where they had lain since the Roman occupation. Six of the bronze toilet instruments, together with a bronze coin bearing the head of Vespasian A.D. 78, were excavated from the bed of the Walbrook in 1933, and twenty-three other instruments which include forceps, probes, spoons, and sounds, were found in the City. A further addition to the series include the blade of a forceps, bronze ear-scoops, sounds, and a large number of bodkins and needles of bronze, wood, and bone, which were found in the mud of the Thames. Among the toilet implements are two bronze nail-files and a combined nail-cutter and ear-scoop, evidently employed for manicuring purposes. From the same donor have also come several cutting knives of the mediæval period and a number of ointment jars, salve pots, and glass phials used by London apothecaries in the seventeenth and eighteenth centuries.

A large collection of surgical instruments used by the late Mr. Charles Heath, F.R.C.S., has been presented to the museum by his executors. His inventive genius is well illustrated in the many instruments he devised in connexion with his work on the nose, ear, and throat. They include examples of his dressing forceps with lifter handles, his tympanic knife, nasal polypus snare, laryngeal scissors, and mastoid gouges, and his mallets of standard silveroid. There are also a number of personal relics.

A gift of historical interest has been received from the trustees of the late Herbert Spencer. It consist of a rosewood box containing forty-eight microscope slides, mounted and prepared by Spencer between 1836 and 1840, which were originally kept at the Athenæum Club. The specimens are chiefly botanical, and consist of sections of leaves and stems of plants and trees such as the elder, dock, acacia, logwood, and turnip. Each slide is carefully labelled in his autograph with the botanical name of the specimen.

An exhibit showing the origin, development, and history of the tourniquet, arranged by Mr. C. J. S. Thompson, hon. curator of the museum, has now been completed and placed in the instrument room. The evolution of the appliance is shown from the primitive garrot used by Morell in 1674. This type was used in amputations in the seventeenth century and was described by Young of Plymouth in 1678 as "a hard linen wad to be placed over the vessel and held in place by a towel passed around the limb, its ends being tied together. The towel was then made tighter by a battoon or bedstaff." Petit's invention of the screw tourniquet in 1718, superseded the use of the cord and stick and limited the pressure to the artery. The advantage of the screw type was soon recognised, and from the eighteenth to the nineteenth century the appliance passed through many modifications. These are illustrated in the many examples of such instruments as Knaur's, Westphalen's axle-type, the English axle, the cylinder type, and the field tourniquet devised by Maclure. Other specimens include the tourniquets invented by Usher Pearson, Viedemann, and Perret, all of which form links in the history of the appliance.

All these additions to the museum will be on view between July 11th and 25th.

PRIMITIVE SOCIETIES

PROMISE of unusual interest for ethnological and anthropological students is made in a book with the inviting title of "Primitive Society and its Vital Statistics."[1] In the preface Dr. Krzywicki explains his concern to show that "there exists a division of primitive life not hitherto sufficiently taken into consideration by science—that of vital statistics" and, he contends, no study of primitive communities should be undertaken without their aid. A comprehensive table of contents summarises topics such as factors determining density of population among primitive communities; population estimates; causes leading to depopulation; effects of contact with higher cultures; natality and mortality experiences among various peoples, and so forth, while a really admirable bibliography calls for special mention.

Following these attractive preliminaries it is disappointing to find that though Dr. Krzywicki has assembled with infinitely laborious research a variety of data, these data are widely removed from modern conceptions of what is meant by the term "vital statistics." The material he examines with prodigious patience comprises an accumulation of facts and figures from the writings of a multitude of travellers and

[1] Primitive Society and its Vital Statistics. By Ludwik Krzywicki, Ph.D., Professor of Social History in the University of Warsaw. London: Macmillan and Co., Ltd. 1934. Pp. 589. 20s.

casual observers whose works have been published at various periods during the past two centuries. The author himself says that the numerical data are of very doubtful value, and that in some cases the figures cease to have any value whatsoever; yet he contends that as they are the only data available they must be referred to as the only existing evidence. Since the data so assembled and regarded as "evidence" are, in the main, conjectural estimates, we cannot agree that they constitute anything but unstable bases for scientific reasoning.

It would be interesting to know what reasons persuaded Dr. Krzywicki to accept without question certain views and estimates, and to reject others. For example, on p. 93, when referring to the Report of the Commission appointed to inquire into the Decrease of the Native Population of Fiji, 1896, he expresses the opinion that "the findings contained in that Report are not perhaps always accurate as a whole," possibly because, in his view, they often "merely quote the explanations furnished by the natives themselves." In point of fact, the Fiji inquiry was an admirable piece of work, conducted on scientific lines, by thoroughly competent men fully conversant with the life and language of the Fijian peoples; such praise can but rarely be given to many of those whose works are liberally quoted in this book. It is difficult to understand how the author hopes to succeed in shedding new light upon important matters concerning primitive peoples, to trace the complex and imperceptible population changes at work among such peoples, or to discuss such problems as the fertility of women among hunting races and settled peoples, if his reasoning has to rest upon the shifting sands of unreliable or conjectural data which cannot, under any pretext, be defined as "vital statistics." Experienced workers among primitive peoples at the present day are convincingly certain that, in the absence of properly conducted inquiries by means of population enumerations *personally* organised and carried out at more or less regular intervals, together with personally collected data relating to births and other immigrants, to deaths and other emigrants, &c., it is impossible to measure the effects of various influences or particular customs on the life of a tribe or people. However pressing the desire, or ambitious the worker in this field of endeavour, the answer must still be that we shall not know the answers to problems peculiar to the lives of this or of that people without the help furnished by dependable statistical records.

TUBERCULOSIS RISKS FOR THE MEDICAL STUDENT

SINCE 1926 Dr. O. Scheel, of the communal hospital, Ullevaal, in Oslo, has kept its students under medical supervision (Nord. med. tidskr., March 30th, 1935, p. 481). His figures up to last summer concern 1176 students, and he classifies them in five groups: (*a*) 361 who were Pirquet-positive before beginning clinical work or during its first two months; (*b*) 207 who were Pirquet-negative before or during their clinical work; (*c*) 246 who were Pirquet-negative before or during their clinical work and were inoculated with B C G; (*d*) 262 who were Pirquet-positive when first examined after their clinical work had lasted at least two months; and (*e*) 100 who had a history of some manifestation of tuberculosis before they began their clinical work. (With only one exception these last were Pirquet-positive.) After the investigations had proceeded for some time, it was found desirable, when a Pirquet reaction was negative, to follow it up with a Mantoux intracutaneous injection of 0·1 or 1 mg. of tuberculin—to make sure. The proportion of positive reactions increased with the years of study more rapidly than among persons of the same age in other walks of life, but not so rapidly as among the Ullevaal nurses, more exposed to infection than the students. Tuberculous manifestations appeared nearly three times as commonly in the originally Pirquet-negative students as they did in the originally Pirquet-positive students. The students inoculated with B C G showed less than half the tuberculosis morbidity of the Pirquet-negative students who dispensed with B C G. The behaviour of the tuberculin reactions after the administration of B C G suggested that it is more potent when given by injection (214 cases) than when taken by the mouth (32 cases).

Scheel's studies throw new light on the question of super-infection of persons already Pirquet-positive. The tuberculosis morbidity among the originally Pirquet-negative students was comparatively high in the first two years of clinical work. There was no similar accumulation of cases among the originally Pirquet-positive students in their first two years. This implies that the importance of a super-infection is small. The figures in this study are too small to justify final conclusions, but they establish a good case for further research in this field.

HYGIENE FOR TEACHERS

A NEW edition of a work on hygiene and sanitation,[1] apparently intended for those training to be school teachers, has reached us. It is, on the whole, accurate in its facts, of which perhaps too many are included for this class of student. It is doubtful whether it is worth while introducing topics like anaphylaxis, allergy, and Ehrlich's side-chain theory when their implications cannot be fully explained. An extensive bibliography, supplied for collateral reading, consists almost entirely of works published in the U.S.A., and is therefore not readily available for the British student.

DEAD AND LIVING ANATOMY

A LITTLE book[2] written for students and practitioners of chiropody will be doubtless of value to them in their efforts to reach a higher level from which they can survey their field. Remembering the author's preface, we take no account of omissions, and but little of errors in detail, which possibly are irrelevant to the special reader's work. The parts are more fully dealt with as one approaches the foot, but it is here that we look in vain for applied anatomy. The values of the arches and the primary value of muscles here might have been stressed; the incidence of the line of weight transference, and the effect on it and on the arches of different positions of the foot, and so on, might have been dealt with, even diagrammatically. The figures are clear and good if we disregard minor errors, and we hope that the author will include some consideration of living anatomy in another edition.

THE RETREAT, YORK

THE annual report of this registered hospital for the treatment of mental disorders, which appeared recently, is the 138th in succession, a fact which speaks for the long repute of the institution. At the beginning of the year 1934, the period covered by the report, there were 182 patients; 95 were admitted during the year, the total number under care being 277; of these patients 71 were discharged and 20 died, 186 being therefore on the books at the beginning of 1935. Of the admissions, 54 per cent. were voluntary patients, and of the 71 discharges 23 were classified as recovered and 37 relieved, the remainder not having improved. All the 20 deaths were from natural causes. Dr. Neil Macleod, the medical superintendent, writes in the report of the significance of out-patient departments in relation to the mental hospital, stating that every town of some size and importance should be equipped with a functional nervous disorder clinic where neurotic conditions can be properly studied and appropriate methods of treatment evolved. Such a clinic, he says, exists in York, and the numbers of those attending it is increasing, but, nevertheless, he feels that a much

[1] Hygiene and Sanitation. Third edition. By Jesse F. Williams, M.D., Professor of Physical Education, Teachers' College, Columbia University. London: W. B. Saunders and Co. 1935. Pp. 372. 9s.

[2] The Anatomy of the Leg and Foot. By Philippa N. Vaus, M.R.C.S., L.R.C.P., Lecturer to the London School of Chiropody. London: Baillière, Tindall and Cox. 1935. Pp. 107. 6s.

larger number of patients in the neighbourhood require and desire psychotherapeutic help. He looks to such clinics in all parts of the country to help the general public to realise that "mental illness is not a doom or a blight, but is a form of disfunction which demands enlightened treatment, whether in an out-patient department or in a mental hospital, according to the degree and quality of the malady."

Vacancies

For further information refer to the advertisement columns

Barrow-in-Furness County Borough.—M.O.H. &c. £900.
Belfast, Royal Maternity Hospital.—Res. M.O. At rate of £52.
Birmingham, General Hospital.—Res. Anæsthetist. £70.
Birmingham, Little Bromwich Hospital for Infectious Diseases.—Jun. Asst. M.O. £300.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.
Bolton, Royal Infirmary.—H.S. £125.
Bristol Royal Infirmary.—Sen. Cas. H.S. Also Sen. Obstet. H.S. Each at rate of £100. H.P.'s and H.S.'s to Spec. Depts. Each at rate of £80. Also H.S. to Ear, Nose, and Throat Dept. £80.
British Postgraduate Medical School, Shepherd's Bush.—Anæsthetist. Also 1st Asst. in Dept of Medicine. Each £300. Also 2 H.S.'s.
Buckinghamshire County Council.—Asst. County M.O.H. £500.
Buxton, Devonshire Royal Hospital.—H.P. also Asst. H.P. At rate of £200 and £150 respectively.
Cancer Hospital, Fulham-road, S.W.—Surgeon.
Canterbury, Kent and Canterbury Hospital.—2 H.S.'s. Each at rate of £125.
Cape Town Hospital Board.—Medical Asst. to Radiological Dept. £600.
Cardiff, Prince of Wales' Orthopædic Hospital.—Sen. and Jun. H.S. At rate of £200 and £100 respectively.
Cardiff, University College of South Wales and Monmouthshire.—Asst. Lecturer in Dept. of Physiology. £400.
Ceylon, Colombo Municipal Council.—City Microbiologist. Rs. 12,000/- a year.
Chester, Royal Infirmary.—H.P. also H.S. Each £150.
Chichester, Royal West Sussex Hospital.—Sen. and Jun. H.S.'s. At rate of £175 and £125 respectively.
Children's Hospital, Hampstead, N.W.—Hon. Asst. Surgeon.
Chorley, Lancs, Chorley and District Hospital.—H.S. At rate of £150.
Cobham, Surrey, Schiff Home of Recovery.—Res. Surg. O. At rate of £200.
Colchester, Essex County Hospital.—H.P. £150. Also Asst. H.S. £120.
Croydon, Mental Hospital, Upper Warlingham, Surrey.—Asst. M.O. £350.
Derbyshire Hospital for Sick Children.—Res. H.S. At rate of £130.
Devon, Royal Devon & Exeter Hospital.—H.S. At rate of £150.
Devonport, Prince of Wales's Hospital.—H.P and Cas. O. At rate of £100.
Doncaster Royal Infirmary.—H.S. to Eye and Ear, Nose, and Throat Depts., Cas. H.S. Also H.S. Each £175.
Eastbourne, Princess Alice Hospital.—Res. H.S. £150.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.
Gloucestershire, Royal Infirmary.—2 H.S.'s, also H.P. Each at rate of £150.
Great Yarmouth, General Hospital.—H.S. £140.
Grimsby County Borough.—Asst. M.O.H., &c. £500.
Grimsby and District Hospital.—Sen. and Jun. H.S.'s. £200 and £150 respectively.
Hackney Hospital, High-street, E.—H.P. At rate of £120.
Halifax County Borough.—Asst. Maternity and Child Welfare M.O. £500.
Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—H.P. also Cas. Surg. O. At rate of £100.
Harrogate Royal Bath Hospital.—Res. M.O. £156.
Herefordshire General Hospital.—Res. Surg. O. £150.
Hospital for Consumption and Dis. of Chest, Brompton, S.W.—Res. M.O. £350.
Hospital for Sick Children, Great Ormond Street, W.C.—Med. Reg. £300.
Hospital for Tropical Diseases, Gordon-street, W.C.—Surgeon.
Huddersfield Royal Infirmary.—H.S. At rate of £150.
Hull Royal Infirmary.—H.S. to Ophth. Ear, Nose and Throat Depts. Second H.P. and third H.S. Each at rate of £150. Also H.P. for Sutton Branch Hospital. At rate of £160.
Ilford Borough.—Asst. M.O.H. £500.
Ilford, King George Hospital.—Asst. Surg. to Fracture and Orthopædic Dept.
Ipswich, Mental Hospital.—H.P. £150.
Ipswich, East Suffolk and Ipswich Hospital.—H.P. and H.S. Each £120.
Kingston and District Hospital.—Asst. Visiting Obstetrician. £300.
Lancaster Royal Infirmary.—Jun. H.S. At rate of £130.
Leicester City Education Committee.—Sen. M.O. £900.
Lincoln, County Hospital.—Jun. H.S. At rate of £150.
Liverpool, Hahnemann Hospital, Hope Street.—Res. M.O. At rate of £120.
Liverpool, Royal Children's Hospital.—Hon. Asst. Phy.
Liverpool, Stanley Hospital.—H.P. and 3 H.S.'s. Each at rate of £100.
London Homœopathic Hospital, Gt. Ormond Street, W.C.—Hon. Phys. for Dis. of Nervous System.
Macclesfield, General Infirmary.—2nd H.S. At rate of £150.
Manchester, Ancoats Hospital.—H.S. At rate of £100. Also Orthopædic H.S. At rate of £100.
Manchester, Christie Hospital and Holt Radium Institute, Withington.—Res. Surg. O. At rate of £150.
Manchester, Monsall Hospital for Infectious Diseases.—Jun. Res. Asst. M.O. At rate of £250.
Manchester, Victoria Memorial Jewish Hospital, Cheetham.—Clin. Pathologist. £250.
Middlesbrough, North Riding Infirmary.—Cas. O. Also third H.S. At rate of £150 and £125 respectively.
Middlesex, North Middlesex County Hospital.—Surgeon. £500. Asst. M.O. At rate of £350. Also Jun. M.O.'s for Special Hospitals. Each at rate of £250.
Mitcham, Wilson Hospital.—Res. M.O. At rate of £120.
Montrose, Royal Asylum.—Jun. Asst. M.O. £300.
Newcastle General Hospital.—Two H.S.'s and one H.P. Each at rate of £150.
Newcastle-upon-Tyne Hospital for Sick Children.—H.P. and H.S. Each at rate of £100.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. Anæs. At rate of £100.
Nottingham, Children's Hospital.—Res. H.S. At rate of £150.
Nottingham General Hospital.—H.S. for Fracture and Orthopædic Depts. £300.
Nottinghamshire, C. C. Education Committee.—Asst. School M.O. £500.
Oldham, Boundary Park Municipal Hospital.—Res. Asst. M.O. At rate of £200.
Paddington Hospital, Harrow-road, W.—Asst. M.O. £250.
Plymouth, Prince of Wales's Hospital, Greenbank Road.—Asst. H.S. At rate of £120.
Preston and County of Lancaster, Royal Infirmary.—H.S. for Special Depts. At rate of £150.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—H.S. Also Cas. O. Each at rate of £125.
Princess Louise Kensington Hospital for Children, St. Quintin-avenue, W.—Hon. Asst. Phys.
Radium Beam Therapy Research, Radium Institute, 16 Riding House Street, W.—Asst. M.O. At rate of £250
Reading, Royal Berkshire Hospital.—Surg. Reg.
Rhondda U.D.C.—2 Asst. M.O.'s. Each £500.
Royal Air Force Commissions.
Royal Eye Hospital, St. George's Circus, S.E.—Hon. Asst. Surgeon.
Royal National Orthopædic Hospital, Great Portland-street, W.—H.S. for Country Branch. At rate of £150.
Royal Naval Medical Service.—Nine M.O.'s.
Royal Northern Hospital, Holloway, N.—H.P. At rate of £70.
Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.
St. Andrew's Hospital, Devons-road, Bow, E.—H.P. At rate of £120.
St. Bartholomew's Hospital Medical College.—Helen Cave Memorial Scholarship. £200.
St. Helens C.B.—Two Asst. M.O.H's. £500 and £600 respectively.
St. Luke's Hospital, Sydney-street, Chelsea, S.W.—H.P. At rate of £120.
St. Thomas's Hospital.—M.O. in charge of Physio-Therapeutic Dept.
Salford Royal Hospital.—Orthopædic Registrar. £100.
Scotland, General Board of Control.—Deputy Commissioners. Each £953.
Sheffield, Children's Hospital.—H.S. At rate of £100.
Sheffield, Royal Infirmary.—Ophth. H.S. At rate of £120. Also H.S. and H.P. Each at rate of £80.
Southend-on-Sea, General Hospital.—Obstet. Officer. £125.
Stafford, Standon Hall Orthopædic Hospital.—H.S. £200.
Sudan Medical Service.—M.O. £E720.
Sunderland, Royal Infirmary.—H.P. £120.
Swansea, General and Eye Hospital.—H.S. At rate of £150.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.P. and H.S. Each at rate of £100.
Warrington County Mental Hospital, Winwick.—Asst. M.O. £500.
West End Hospital for Nervous Diseases, Gloucester Gate, N.W.—Res. H.P. At rate of £125.
West End Hospital for Nervous Diseases, 73 Welbeck Street, W.—Hon. Med. Psychologists for Child Guidance Unit. Also 2 Hon. Clin. Psychologists.
Westminster Hospital, Broad Sanctuary, S.W.—Wander Scholarship. £250.
Wigan, Royal Albert Edward Infirmary and Dispensary.—H.S.. At rate of £150.
Willesden General Hospital, Harlesden-road, N.W.—Hon. Surgeon.
Wolverhampton, Royal Hospital.—H.S. for Fracture and Orthopædic Dept. At rate of £100.
Woodside Hospital, Muswell Hill, N.—Res. H.P. At rate of £100.
Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—Res. M.O. £175.
Worcester, Royal Infirmary.—Jun. H.S. £120.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Newport, Isle of Wight.

PRINCESS BEATRICE HOSPITAL, LONDON.—Lord Lord Carisbrooke is appealing for £100,000 for this hospital at Earls Court, which was called after his mother when it was rebuilt in 1930. It is now £68,000 in debt and costs £24,000 a year to maintain, about £9,000 of this being contributed by patients. The hospital's financial troubles have been caused by the coming of the economic crisis at a time when building was in progress, this making it impossible to complete the original schemes.